Final Environmental Indicators (EI) Report

Millennium Petrochemicals, Inc.
ILD005078126 – Douglas County – 0418080002

Equistar Chemicals, LP – Tuscola Plant
625 East US Hwy 35 / Tuscola, Illinois

Volume 2 of 4
Appendices A through D

Clayton Project No. 15-00116.03
October 31, 2001

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Clayton℠
GROUP SERVICES

FINAL ENVIRONMENTAL INDICATORS (EI) REPORT

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APPENDIX A

APPENDIX A

ENVIRONMENTAL INDICATOR FORMS

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APPENDIX A-1

CURRENT HUMAN EXPOSURES UNDER CONTROL (CA725)

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Millennium Petrochemicals, Inc. (Equistar)
Facility Address: 625 East US Highway 36 / Tuscola, IL 61953
Facility EPA ID #: ILD 005 078 126

1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

   X If yes - check here and continue with #2 below.

   ____ If no - re-evaluate existing data, or

   ____ if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	X			VOCs & Metals - See 10/31/01 EI Report
Air (indoors)[2]		X		
Surface Soil (e.g., <2 ft)		X		
Surface Water		X		
Sediment	X			PAHs & Metals - See 10/31/01 EI Report
Subsurf. Soil (e.g., >2 ft)		X		
Air (outdoors)		X		
WWT Pond Sludge	X			VOCs, PAHs, & Metals - see 10/31/01 EI Report

____ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

__X__ If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

Refer to EI Report (10/31/01).

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[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	Yes	No	No	No			Yes
~~Air (indoors)~~	___	___	___				
~~Soil (surface, e.g., <2 ft)~~	___	___	___	___	___	___	___
~~Surface Water~~	___	___			___	___	___
Sediment	No	Yes			Yes	Yes	No
~~Soil (subsurface e.g., >2 ft)~~				___			___
~~Air (outdoors)~~			___	___			
WWTP Pond Sludge	No	Yes	← change to NO?		Yes	No	No

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated" as identified in #2 above.

2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

___ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

X If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

___ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code.

Rationale and Reference(s): Refer to EI Report (10/31/01).
- Area residents use groundwater for their potable water supply.
- Recreational use of the Kaskaskia River.

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be

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[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

"significant"[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

X If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

Refer to EI Report (10/31/01).
Contaminants detected do not exceed human health criteria at point of contact. ~ Do not agree.

Check w/ Mario if "significant":
Residential GW: Data shows not above MCLs or other levels for HH, but what about [illegible] for [illegible]?
River sediments, ~~[illegible]~~ (trespassers) Recreation → As = 22 ppm > R5 Ingestion (Res) — All samples [illegible]
— DEQ Ingestion [illegible]
Be = 0.94 ppm > R5 Ingestion (Res) 0.1 ppm — All sampling
TDEQ Ingestion (Res) 0.1 ppm
Total Cr = 330 ppm > R5 Inhalation (Res) 270 ppm Inh
— DEQ Ingestion / Inhalation (Res) 230 ppm / 270 ppm
In 1 downstream [illegible] and outlet [illegible]. [illegible] below

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

Stream Sed.

5. Can the "significant" exposures (identified in #4) be shown to be within acceptable limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

_X_ YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Millennium Petrochemicals (Equistar) facility, EPA ID # ILD005078126, located at Tuscola, Illinois under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

____ IN - More information is needed to make a determination.

Completed by (signature) _____ Date _____
(print) _____
(title) _____

Supervisor (signature) _____ Date _____
(print) _____
(title) _____
(EPA Region or State) _____

Locations where References may be found:

Contact telephone and e-mail numbers

(name) _____
(phone #) _____
(e-mail) _____

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

APPENDIX A-2

MIGRATION OF CONTAMINATED GROUNDWATER UNDER CONTROL (CA750)

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: Millennium Petrochemicals, Inc. (Equistar)
Facility Address: 625 East US Highway 36 / Tuscola, IL 61953
Facility EPA ID #: ILD 005 078 726

1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

   X If yes - check here and continue with #2 below.

   ____ If no - re-evaluate existing data, or

   ____ if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Is **groundwater** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

_X_ If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

____ If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

Refer to EI Report (10/31/01).

VOCs and metals exceed groundwater screening levels.

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[2] as defined by the monitoring locations designated at the time of this determination)?

__X__ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"[2]).

____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"[2]) - skip to #8 and enter "NO" status code, after providing an explanation.

____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

Refer to EI Report (10/31/01).

Equistar is doing this for landfills w/IEPA approval only for shallow Deep Aquifer

[2] "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

____ If yes - continue after identifying potentially affected surface water bodies.

_X_ If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

Refer to EI Report (10/31/01).

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration[3] of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

____ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of <u>key</u> contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration[3] of <u>each</u> contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be **"currently acceptable"** (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed

[3] As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

to continue until a final remedy decision can be made and implemented[4])?

____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR
2) providing or referencing an interim-assessment,[5] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

____ If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s):

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[4] Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

[5] The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

_X_ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

____ If no - enter "NO" status code in #8.

____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

Landfill groundwater monitoring program will continue as part of the Illinois EPA post-closure permit.

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control

EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

__X__ YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the Millennium Petrochemicals (Equistar) facility, EPA ID # ILD 005 078 126, located at Tuscola, Illinois. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

____ NO - Unacceptable migration of contaminated groundwater is observed or expected.

____ IN - More information is needed to make a determination.

Completed by (signature) _____ Date _____
(print) _____
(title) _____

Supervisor (signature) _____ Date _____
(print) _____
(title) _____
(EPA Region or State) _____

Locations where References may be found:

Contact telephone and e-mail numbers

(name) _____
(phone #) _____
(e-mail) _____

APPENDIX B

APPENDIX B

PHOTOGRAPHS TAKEN DURING RFI FIELD ACTIVITIES

B-1 RFI Field Sampling
B-2 Ecological Inventory

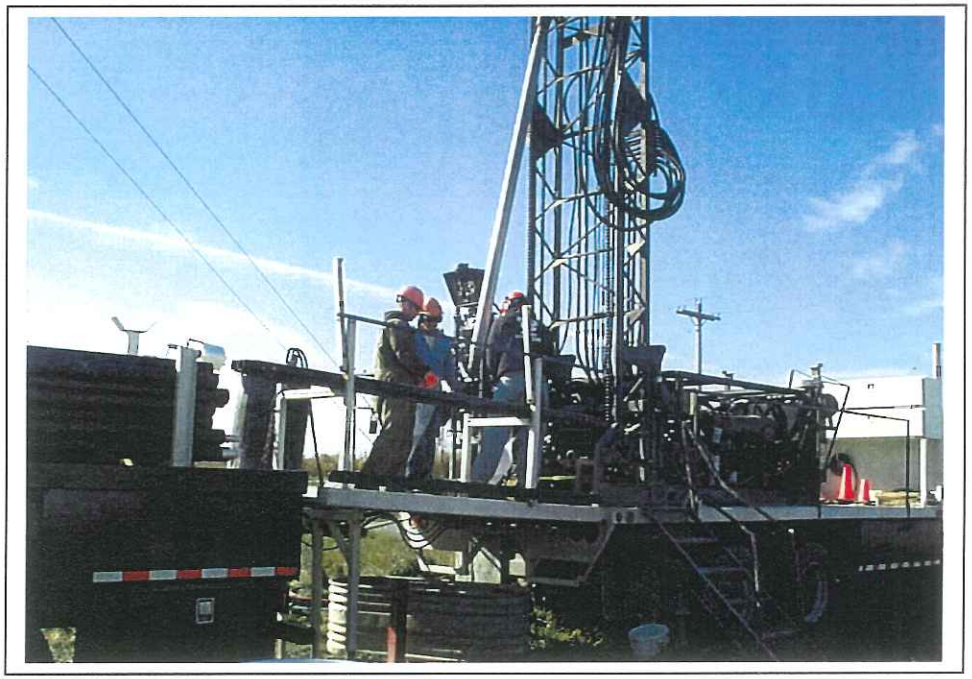
APPENDIX B-1

RFI FIELD SAMPLING

PHOTO LOG
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Project 15-00116.01

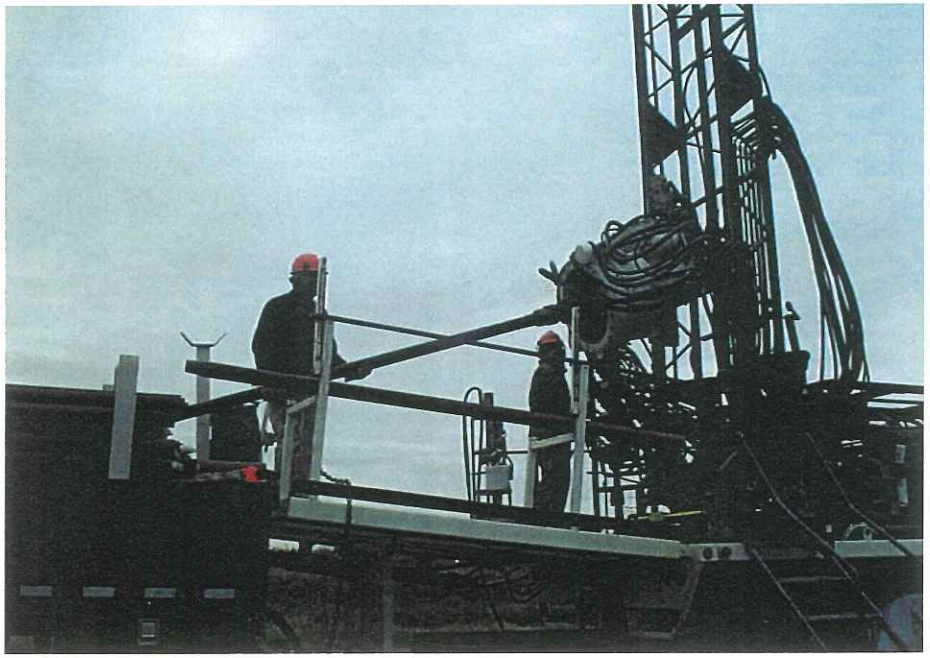
PHOTOGRAPH # 1 *by MEL: 11/3/00*
Location/Direction: Facing north
Rotosonic drilling of SB-01.



PHOTOGRAPH # 2 *by MEL: 11/7/00*
Location/Direction: Facing southwest
Rotosonic drilling of SB-01S.

PHOTO LOG
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Project 15-00116.01



PHOTOGRAPH # 3 *by MEL: 11/8/00*
Location/Direction: Facing north
Rotosonic drilling of SB04.

PHOTOGRAPH # 4 *by MEL: 11/3/00*
Location/Direction: Facing north
Sample collection from rotosonic sampling pipe.

PHOTO LOG
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Project 15-00116.01

PHOTOGRAPH # 5 *by MEL: 11/1/00*
Location/Direction: Facing south
Stainless steel screen at MW02D.

PHOTOGRAPH # 6 *by MEL: 11/5/00*
Location/Direction: Facing west
Installation of stainless seel well riser at MW07D.

PHOTO LOG
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Project 15-00116.01

PHOTOGRAPH # 7 *by MEL: 11/8/00*
Location/Direction: SB04
Soil found at 24 feet bgs.

PHOTOGRAPH # 8 *by MEL: 11/8/00*
Location/Direction: SB04
Soil found at 47 to 48 feet bgs.

PHOTO LOG
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Project 15-00116.01

PHOTOGRAPH # 9 *by MEL: 11/8/00*
Location/Direction: SB04
Soil found at 57 to 58 feet bgs.

PHOTOGRAPH # 10 *by MEL: 11/8/00*
Location/Direction: SB04
Soil found at 80 feet bgs.

PHOTO LOG
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Project 15-00116.01

PHOTOGRAPH # 11 *by MEL: 11/14/00*
Location/Direction: Facing south
Installation of the concrete pad at MW09S.

PHOTOGRAPH # 12 *by MEL: 11/30/00*
Location/Direction: Facing northeast.
Development of MW07S and MW07D.

PHOTO LOG
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Project 15-00116.01

PHOTOGRAPH # 13 *by MEL: 11/14/00*
Location/Direction: Facing southeast.
Sampling sludge at Middle Pond #2.

PHOTOGRAPH # 14 *by MEL: 11/14/00*
Location/Direction: Facing east
Sampling sludge at Middle Pond #2.

PHOTO LOG
Millennium Petrochemicals, Inc.
Tuscola, Illinois

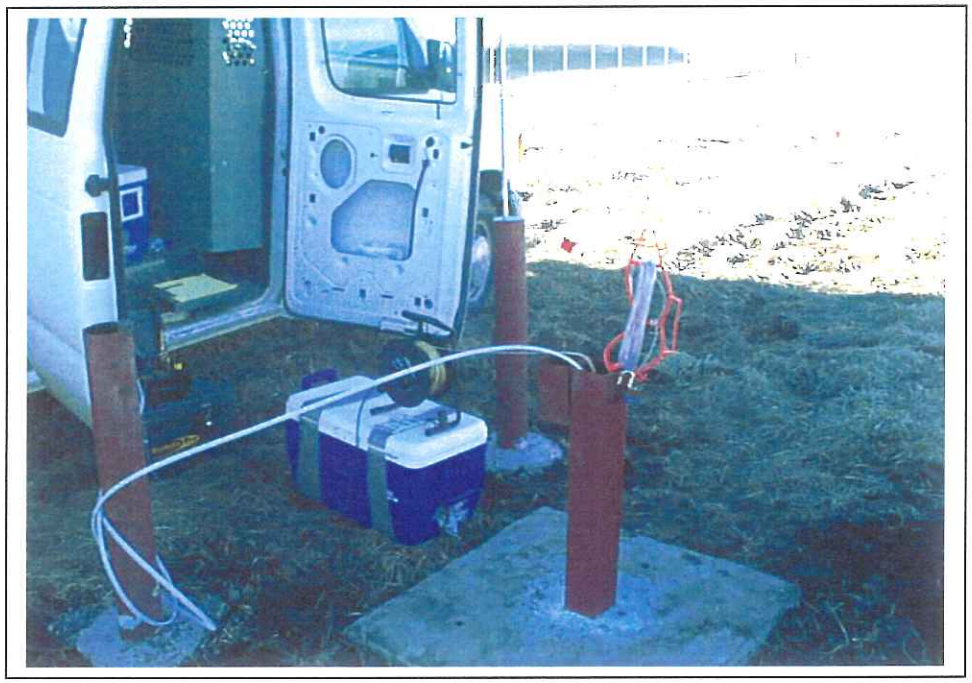
Project 15-00116.01

PHOTOGRAPH # 15 *by MEL: 12/4/00*
Location/Direction: Facing southeast
MW08 after being vandalized.

PHOTOGRAPH # 16 *by MEL: 12/4/00*
Location/Direction: Facing northeast
MW08 after being vandalized.

PHOTO LOG
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Project 15-00116.01

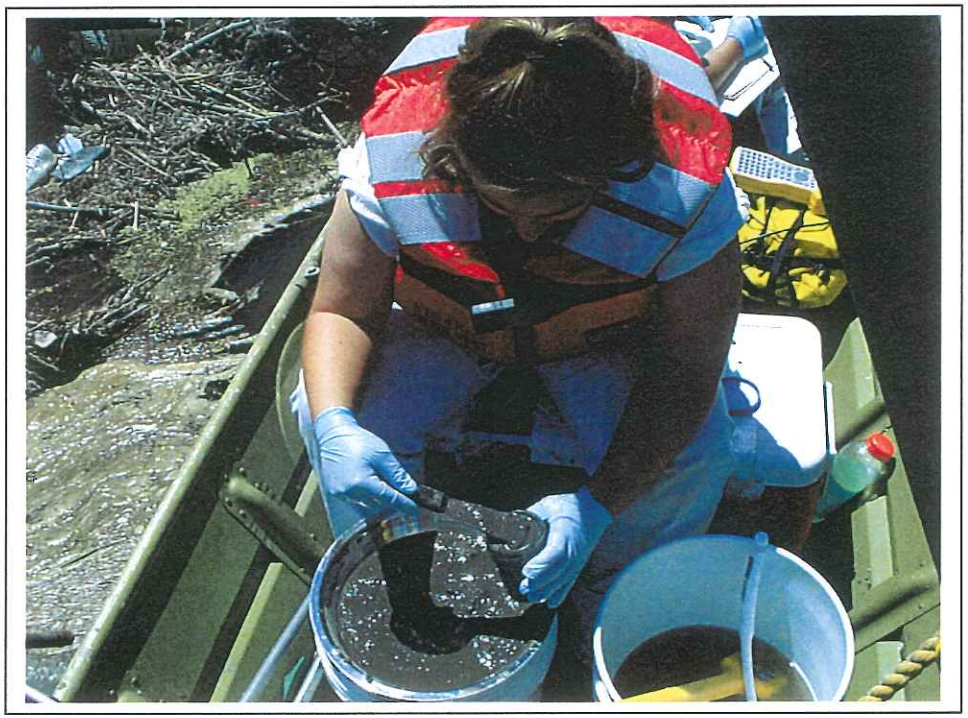


PHOTOGRAPH # 17 *by MEL: 3/8/01*
Location/Direction: Facing northwest
Low flow sampling of MW02D

PHOTOGRAPH # 18 *by MEL: 8/10/01*
Location/Direction: Facing northwest
Peristaltic sampling of MW10

PHOTO LOG
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Project 15-00116.01

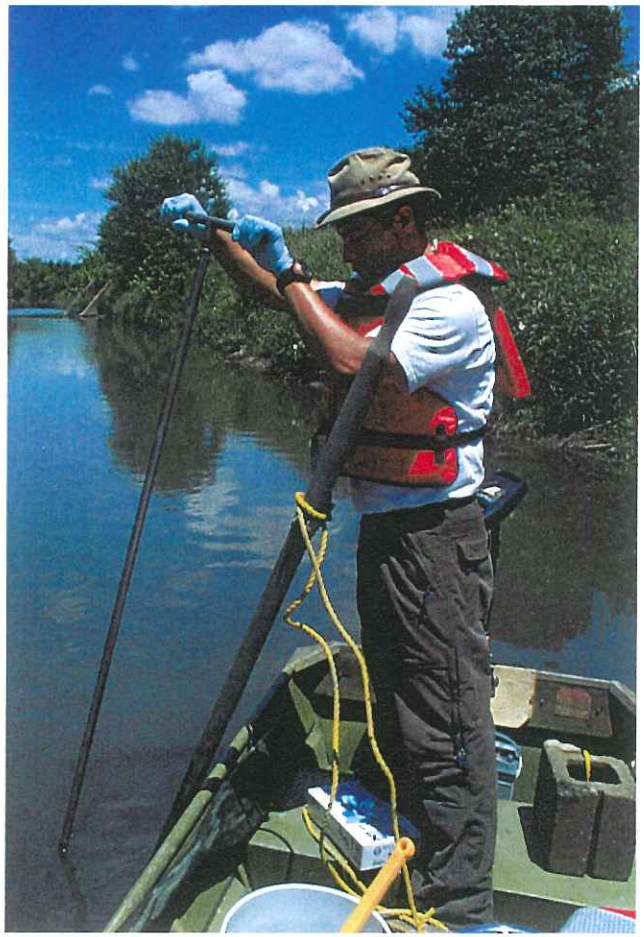


PHOTOGRAPH # 19 *by GEG: 7/12/01*
Location/Direction: Facing West
Sampling of Kaskaskia River sediment

PHOTOGRAPH # 20 *by NOB: 7/12/01*
Location/Direction: Facing West
Collecting GPS information during sampling of the Kaskaskia River

PHOTO LOG
Millennium Petrochemicals, Inc.
Tuscola, Illinois

Project 15-00116.01



PHOTOGRAPH # 21 *by GEG: 7/12/01*
Location/Direction: Facing East
Collecting Kaskaskia River sediment

APPENDIX B-2

ECOLOGICAL INVENTORY

PHOTOGRAPH # 1 *by HLM: 05/02/01*
Location/Direction: Facing east. *Time 1037*
View of offsite pond along Route 36.

PHOTOGRAPH # 2 *by HLM: 05/02/01*
Location/Direction: Facing east. *Time 1039*
View of northern drainage swale above Treatment Ponds.

PHOTOGRAPH # 3 *by HLM: 05/02/01*
Location/Direction: Facing south. *Time 1038*
Fresh water pond located on west side of the site.

PHOTOGRAPH # 4 *by HLM: 05/02/01*
Location/Direction: Facing east. *Time 1042*
View of WWT Ponds along the northern edge of the Site.

PHOTOGRAPH # 5 *by HLM: 05/02/01*

Location/Direction: Facing east. *Time 1050*

View of the WWT Ponds in the northwestern area of the Site.

PHOTOGRAPH # 6 *by HLM: 05/02/01*

Location/Direction: Facing west. *Time 1043*

Small pond of fresh water located near the inlet on the west side of the Site.

PHOTOGRAPH # 7 *by HLM: 05/02/01*
Location/Direction: Facing west. *Time 1055*
View of the Kaskaskia River.

PHOTOGRAPH # 8 *by HLM: 05/02/01*
Location/Direction: Facing west. *Time 1032*
View of Kaskaskia River.

PHOTOGRAPH # 9 *by HLM: 05/02/01*
Location/Direction: Facing west. *Time 1033*
The inlet located in the west end of the Site.

PHOTOGRAPH # 10 *by SH: 05/02/01*
Location/Direction: Plot #3 *Time 1015*
Clayton identifying plants for Floristic Quality Assessment.

PHOTOGRAPH # 11 *by HLM: 05/02/01*
Location/Direction: Plot #3 *Time 1020*
Clayton digging soil to describe soil profile for Floristic Quality Assessment.

PHOTOGRAPH # 12 *by HLM: 05/02/01*
Location/Direction: Plot #3 *Time 1025*
Clayton operates GPS unit to determine coordinates for Floristic Quality Assessment.

PHOTOGRAPH # 13 *by HLM: 05/02/01*
Location/Direction: Facing south. *Time 830*
Plot #1 in wetland.

PHOTOGRAPH # 14 *by HLM: 05/02/01*
Location/Direction: Facing southeast. *Time 0837*
Area of Plot #1 in Floristic Quality Assessment.

PHOTOGRAPH # 15 *by HLM: 05/02/01*
Location/Direction: Facing east. *Time 0835*
Area of Plot #1 in Floristic Quality Assessment.

PHOTOGRAPH # 16 *by HLM: 05/02/01*
Location/Direction: Facing southwest. *Time 0838*
Area of Plot #1 in Floristic Quality Assessment

PHOTOGRAPH # 17
Location/Direction: Facing southwest.
Plot #3 of Floristic Quality Assessment

by HLM: 05/02/01
Time 1017

PHOTOGRAPH # 18
Location/Direction: Facing west.
Area of Plot #3 of Floristic Quality Assessment.

by HLM: 05/02/01
Time 1018

APPENDIX C

APPENDIX C

SOIL BORING / MONITORING WELL COMPLETION INFORMATION

C-1 Soil Boring Logs
C-2 Well Completion Diagrams
C-3 Well Construction Reports

APPENDIX C-1

SOIL BORING LOGS

Clayton GROUP SERVICES

BORING NO: SB01	WELL NO: MW01D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium /Tuscola, IL
BORING LOCATION: East of WWT Ponds, across Co. Rd. 615 E		COORDINATES: 978260.807 E, 1143144.488 N	
DRILLING CO: Boart-Longyear	DRILLER: D. Duscher	LOGGED BY: K. Comire	
DRILLING EQUIP: Rotosonic Drill	SCREEN INTERVAL: 79.47-84.17 ft bgs	CHECKED BY: M. Nienkerk	
STATIC WATER LEVEL: 656.39 ft (12/09/00)	SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/3/00	
BOREHOLE DIA: 6"	STICKUP: 2.03 ft	START TIME (hours): 10:03	
TOP of CASING ELEVATION: 681.21 ft	G.S. ELEVATION: 679.18 ft	FINISH DATE: 11/4/00	
RISER DIA/MTL/LGTH: 2"/Stainless Steel/81.5 ft	DEV. METHODS: Submersible Pump	FINISH TIME (hours): 07:36	

DEPTH (ft / m)	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
-4 / -2											
0	**0-1.7' SILT-ML** Dark brown, moist, with organic silt, some roots (topsoil)										Grass Surface
2 / 1	**1.7-45.0' SILTY CLAY-CL** Light brown w/ orange mottles & black mottles, moist, trace fine sand, roots (till)			1	3'/5'	RC	M	NA	0	NA	
4 / 6	Grades w/ fine to coarse sand & fine gravel (subangular to rounded) at 7.0 ft Dry from 7.2-7.7 ft			2	3'/5'	RC	M	NA	0	NA	Grain-size, bulk density, pH, moisture and total organic carbon sample at 7.0 ft
8 / 10 / 3	Grades gray w/ no mottles at 11.5 ft			3	3'/3'	RC	M	NA	0	NA	
12 / 14	Interspersed w/ brown silty clay inclusions from 13.6-14.2 ft Lens of silt, dark brown, moist, from 14.5-14.7 ft			4	1.8'/2'	RC	M	NA	0	NA	
16											

Boring/Well No.: SB01/MW01D

Clayton GROUP SERVICES

BORING NO: SB01	WELL NO: MW01D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium /Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
18	**1.7-45.0' SILTY CLAY-CL** (continued)			5	3.6'/5'	RC	M	NA	0	NA	
20 (6)	Trace orange mottles from 15.0-20.0 ft										
22				6	4.4'/5'	RC	M	NA	0	NA	
24											
26 (8)											
28											
30				7	8.4'/10'	RC	M	NA	0	NA	
32											
34 (10)											
36											

Clayton GROUP SERVICES

BORING NO: SB01	WELL NO: MW01D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium /Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
38	**1.7-45.0' SILTY CLAY-CL** (continued)										
12											
40				8	10'/10'	RC	M	NA	0	NA	
42	Grades dark gray w/ trace orange silty fine sand inclusions (1/8-1/4"), trace fine to coarse sand (angular to subangular) from 44.2-45.0 ft										
44											
46	**45.0-46.1' CLAYEY SILT-CL/ML** Gray w/orange mottles, moist, trace fine to coarse sand and fine gravel (angular to rounded) (till)										
14											
48	**46.1-50.5' SILT-ML** Grayish green, w/ trace orange mottles, moist, w/ clay, trace fine to coarse sand (subangular to rounded) (interglacial)										
50	Lenses of sand, brown, saturated, fine (1/4-1/2") at 47.2, 49.3, and 49.9 ft and from 48.6-48.8 ft			9	8.5'/10'	RC	M/S/M	NA	0	NA	
52	**50.5-52.9' SAND-SW** Brownish gray, saturated, (subangular to rounded), trace silt & fine to medium gravel (interglacial)										
16	Lens of sand, light brown, fine from 51.9 to 52.2 ft										
54	**52.9-53.5' SAND-SP** Gray, saturated, fine, some silt Tr silt from 53.1- 53.3 ft (inter.)										Grain-size, non volatile organic carbon, pH and moisture sample at 53.0 ft
56	**53.5-55.5' SILT-ML** Gray w/ trace orange mottles, moist w/ clay (interglacial) With organic silt at 54.1 ft										

Boring/Well No.: SB01/MW01D

Clayton GROUP SERVICES

BORING NO: SB01	WELL NO: MW01D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium /Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
58	**55.5-56.6' SILTY CLAY-CL** Dark gray, moist w/ fine to coarse sand (angular to rounded) (interglacial)										
	56.6-58.8' SAND-SP Gray, saturated, fine w/ some medium to coarse sand & fine gravel (angular to rounded), some silt (interglacial)										
60	**58.8-71.0' SILTY CLAY-CL** Gray, moist & fine to coarse sand & gravel (angular to rounded) (till)			10	9.1'/10'	RC	0	NA	NA	M/S/M	
62	19										
64	Grades dry from 63.9-65.0 ft										
66											
68				11	6'/6'	RC	M	NA	0	NA	Grain-size, bulk density, pH, moisture and total organic carbon sample at 67.0 ft
70	21										
72	**71.0-71.8' SAND-SP** Light brownish gray, saturated, fine, w/ some medium to coarse sand & silt (subangular to rounded)										
74	**71.8-74.3' SILT-ML** Light brownish gray, moist, some clay & fine to coarse sand (angular to rounded) (till)			12	4'/4'	RC	S/M/S	NA	0	NA	
76	23										

Boring/Well No.: SB01/MW01D

Clayton GROUP SERVICES

BORING NO: SB01	WELL NO: MW01D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium /Tuscola, IL

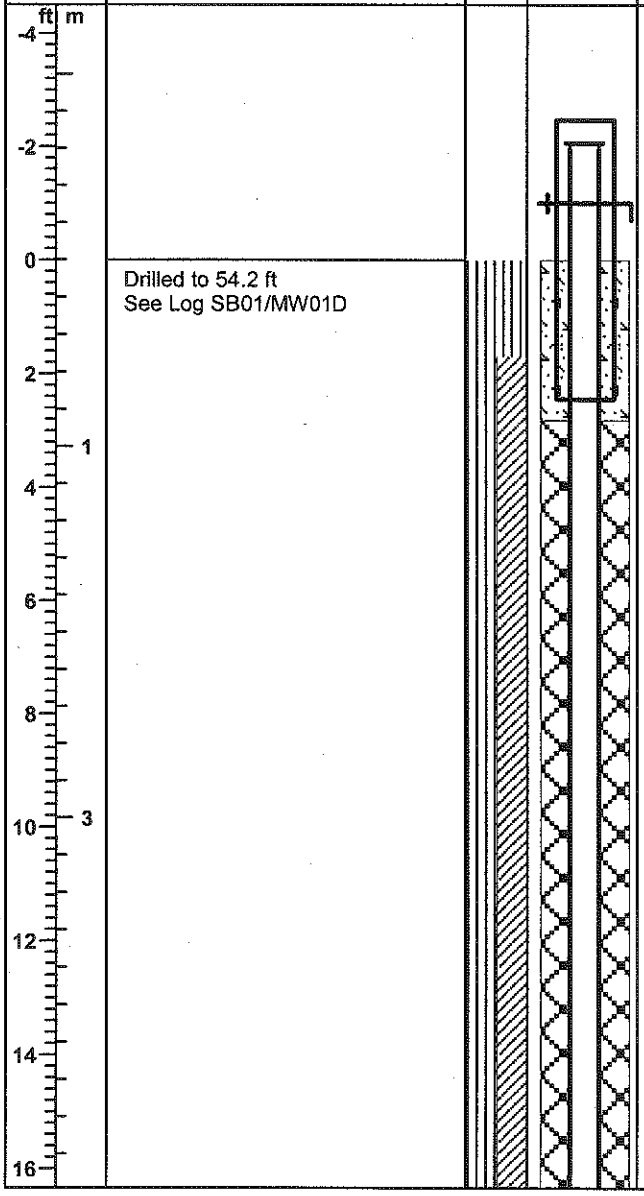
DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
78	**74.3-85.0' SAND-SP** Light brownish gray, saturated, fine, some medium to coarse sand (angular to subangular) & silt Lens of silt, brown to light gray, moist from 76.8-77.0 ft Grades w/ medium to coarse sand, (angular to subangular), trace silt & fine to medium gravel (angular to subangular) from 77.0-82.5 ft			13	8'/10'	RC	S	NA	0	NA	Grain-size, non volatile organic carbon, pH and moisture sample at 78.0 ft
80											
82	25 Grades to trace coarse sand & fine gravel (angular to rounded) from 82.5-84.8 ft Grades to some silt at 84.0 ft										
84	Lens of silt, brownish gray, moist, some clay from 84.8-85.0 ft										Boring sloughed from 84.47 to 91.0 ft
86	**85.0-91.0' SILTY CLAY-CL** Gray (trace orange mottles at 90.7-90.8 ft), moist w/ fine to coarse sand (angular to rounded) (till)										
88				14	5.6'/6'	RC	M	NA	0	NA	
90	27										
92	**End of Boring at 91.0 ft**										
94											
96	29										

Boring/Well No.: SB01/MW01D

Clayton GROUP SERVICES

BORING NO: SB01	WELL NO: MW01S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL
BORING LOCATION: East of WWT Ponds, across Co. Rd. 615 E		COORDINATES: 978255.170 E, 1143144.279 N	
DRILLING CO: Boart-Longyear	DRILLER: D. Duscher	LOGGED BY: K. Comire	
DRILLING EQUIP: Rotosonic Drill	SCREEN INTERVAL: 49.14-53.84 feet bgs	CHECKED BY: M. Nienkerk	
STATIC WATER LEVEL: 657.07 ft (12/09/00)	SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/04/00	
BOREHOLE DIA: 6"	STICKUP: 1.98 ft	START TIME (hours): 8:13	
TOP of CASING ELEVATION: 681.24 ft	G.S. ELEVATION: 679.26 ft	FINISH DATE: 11/04/00	
RISER DIA/MTL/LGTH: 2"/Stainless Steel/51.12 ft	DEV. METHODS: Submersible Pump	FINISH TIME (hours): 15:00	

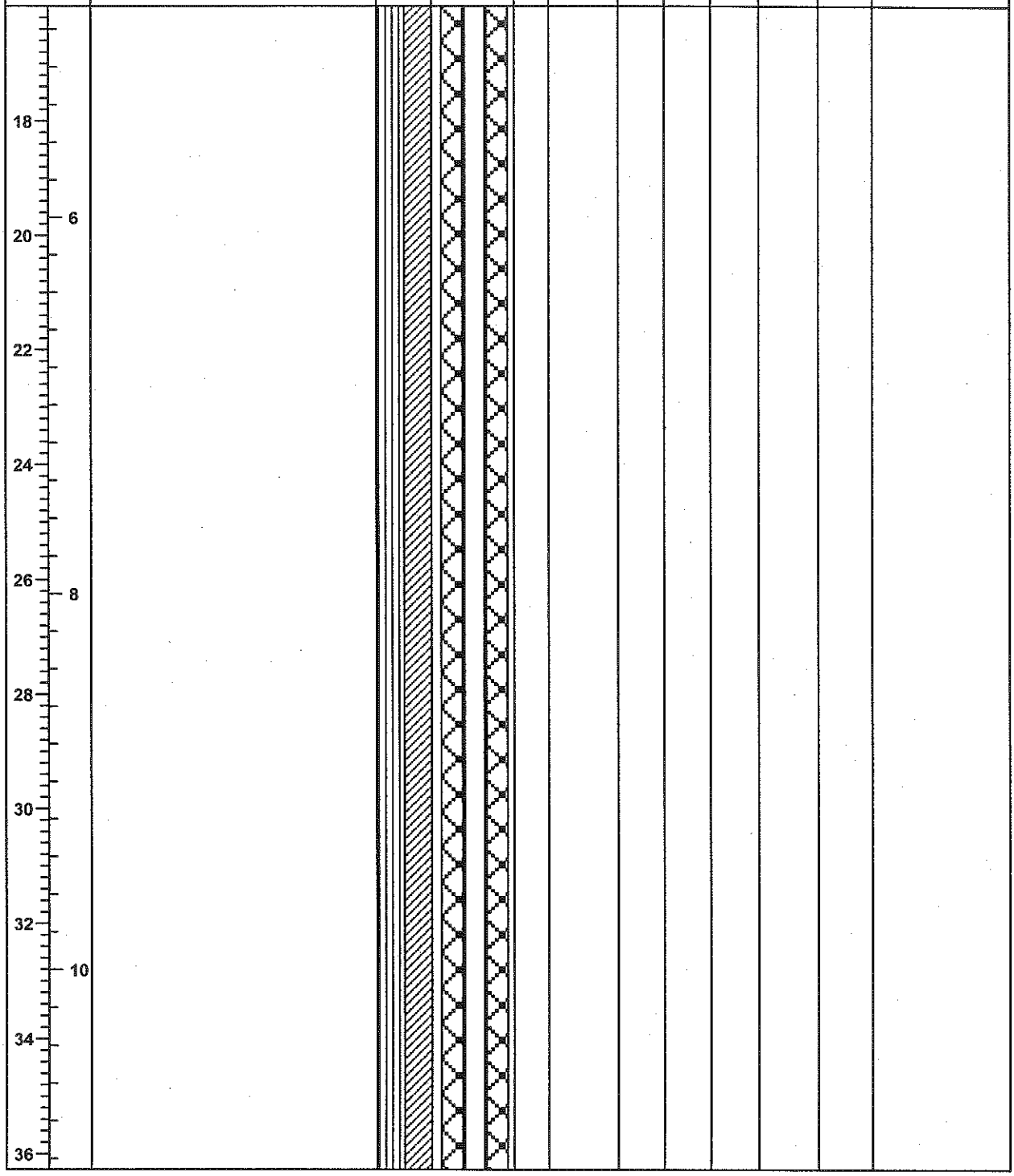
DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
ft / m	Drilled to 54.2 ft See Log SB01/MW01D										Grass Surface



Boring/Well No.: SB01/MW01S

Clayton GROUP SERVICES

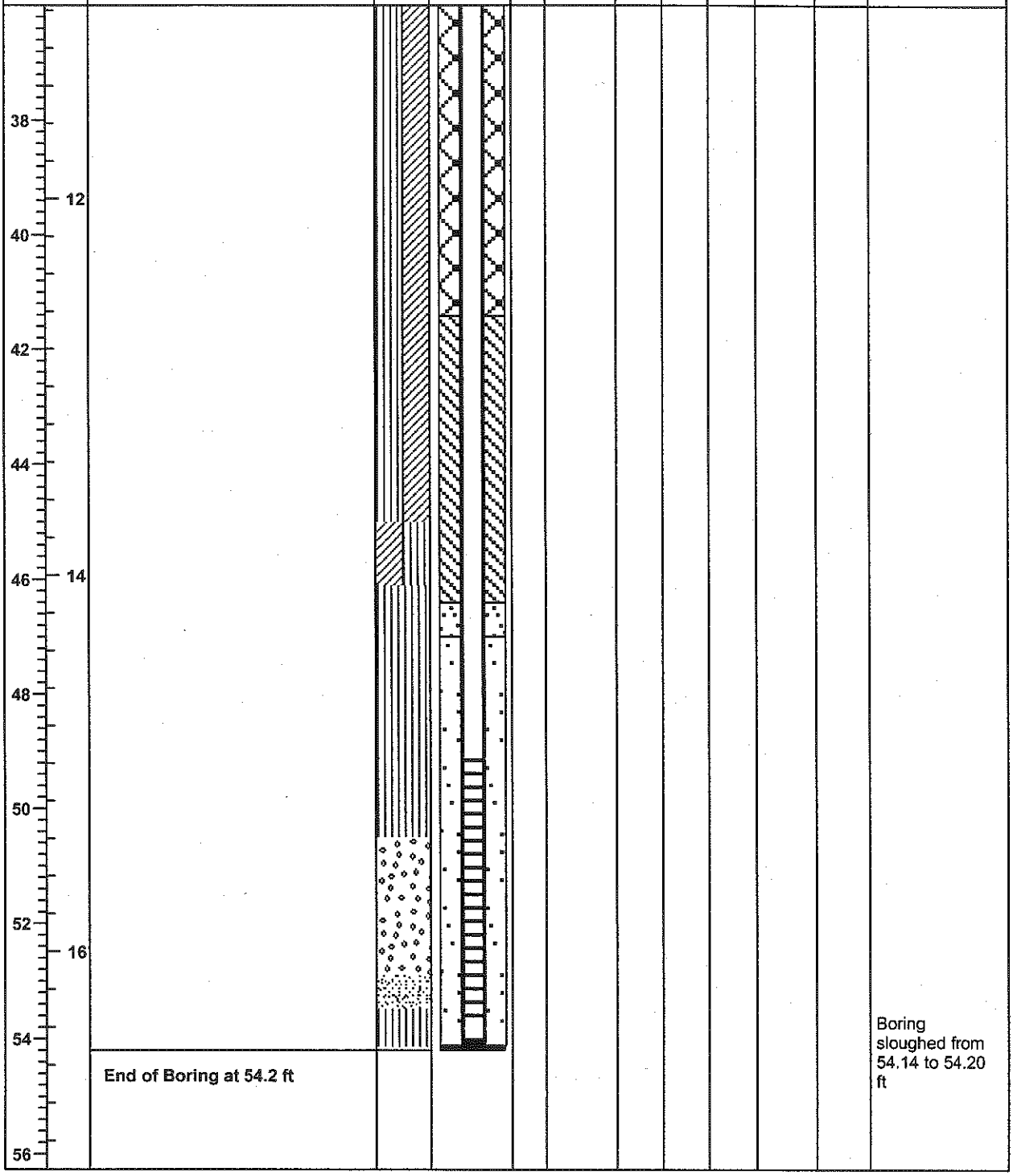
BORING NO: SB01	WELL NO: MW01S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL



Boring/Well No.: SB01/MW01S

Clayton GROUP SERVICES

BORING NO: SB01	WELL NO: MW01S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL



Boring/Well No.: SB01/MW01S

Clayton GROUP SERVICES

BORING NO: SB02	WELL NO: MW02D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL
BORING LOCATION: East of WWT Ponds, across Co. Rd. 615 E		COORDINATES: 978299.197 E, 1141690.769 N	
DRILLING CO: Boart-Longyear	DRILLER: D. Duscher	LOGGED BY: K. Comire	
DRILLING EQUIP: Rotosonic Drill	SCREEN INTERVAL: 67.37-72.07 ft bgs	CHECKED BY: M. Nienkerk	
STATIC WATER LEVEL: 657.22 ft (12/09/00)	SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/1/00	
BOREHOLE DIA: 6"	STICKUP: 2.00 ft	START TIME (hours): 09:01	
TOP of CASING ELEVATION: 676.44 ft	G.S. ELEVATION: 674.44 ft	FINISH DATE: 11/1/00	
RISER DIA/MTL/LGTH: 2"/Stainless Steel/69.37 ft	DEV. METHODS: Bailer	FINISH TIME (hours): 16:50	

DEPTH (ft)	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	RECOVERY	METHOD	MOISTURE	BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
0											Grass Surface
2	**0-4.5' SILTY CLAY-CL** Dark gray, moist w/ organic silt, trace roots (topsoil from 0-2.0 ft) Grades grey w/ orange mottles, some organic silt, trace roots at 2.0 ft (till)			1	5'/5'	RC	M	NA	0	NA	
6	**4.5-6.0' CLAY-CL** Light brown, w/ orange mottles, moist, some silt, trace fine to coarse sand (angular to subangular) (till)			2	3.6'/5'	RC	M	NA	0	NA	
8	**6.0-46.4' SILTY CLAY-CL** Grayish brown w/ some orange mottles, moist, some fine to coarse sand & fine gravel (angular to subangular) (till)										
12	Grades grey w/ no mottles at 12.0 ft			3	4.6'/5'	RC	M	NA	0	NA	
14	Trace medium-coarse gravel from 15.0-20.0 ft (angular to subangular)										
16											

Boring/Well No.: SB02/MW02D

Clayton GROUP SERVICES

BORING NO: SB02	WELL NO: MW02D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
18	**6.0-46.4' SILTY CLAY-CL** (Continued)			4	4.4'/5'	RC	M	NA	0	NA	
20 (6)	Some fine to coarse sand (angular to rounded) from 20.0-25.0 ft			5	5'/5'	RC	M	NA	0	NA	
22											
24											
26 (8)				6	5'/5'	RC	M	NA	0	NA	
28	W/ fine to coarse sand & gravel (subangular to rounded) from 28.9-33.5 ft										
30											
32 (10)				7	4.6'/5'	RC	M	NA	0	NA	
34	Some fine to coarse sand & fine gravel (subangular to rounded) from 33.5-35.0 ft (angular to rounded from 35.0-40.0 ft)										
36											

Clayton GROUP SERVICES

BORING NO: SB02	WELL NO: MW02D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
38	**6.0-46.4' SILTY CLAY-CL** (Continued)			8	5'/5'	RC	M	NA	0	NA	
40 (12)	W/ fine to coarse sand & gravel (subangular to rounded) from 40.5-42.3 ft Grades w/ orange mottles and orange silty fine sand inclusions (1/8-1/4"), trace fine to coarse sand (angular to rounded) at 42.3 ft			9	4.8'5'	RC	M	NA	0	NA	
42	Lens of silty sand, gray, moist, fine from 43.9-44.1 ft Lens of silt, gray, moist w/ clay from 44.5-44.8 ft										
44	Grades gray, some fine to coarse sand & fine gravel (angular to rounded) at 45.0 ft										
46 (14)	**46.4-47.4' SILT-ML** Brown, moist, lenses of clay, gray (1/4") at 47.2 & 47.3 ft (interglacial)			10	5'/5'	RC	M	NA	0	NA	
48	**47.4-48.3' SILTY CLAY-CL** Gray, moist, some fine to coarse sand & fine gravel (angular to rounded) (interglacial)										
50	**48.3-49.3' SILT-ML** Dark brown, moist w/ some clay & trace roots (interglacial)										
52 (16)	**49.3-68.9' SILTY CLAY-CL** Gray w/ trace black mottles, moist (till) W/ fine to coarse sand (angular to rounded) at 51.0 ft			11	4.2'/5'	RC	M	NA	0	NA	
54											
56	Lens of sand, gray, saturated, fine to coarse from 56.4-56.5 ft										

Boring/Well No.: SB02/MW02D

Clayton
GROUP SERVICES

BORING NO: SB02	WELL NO: MW02D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

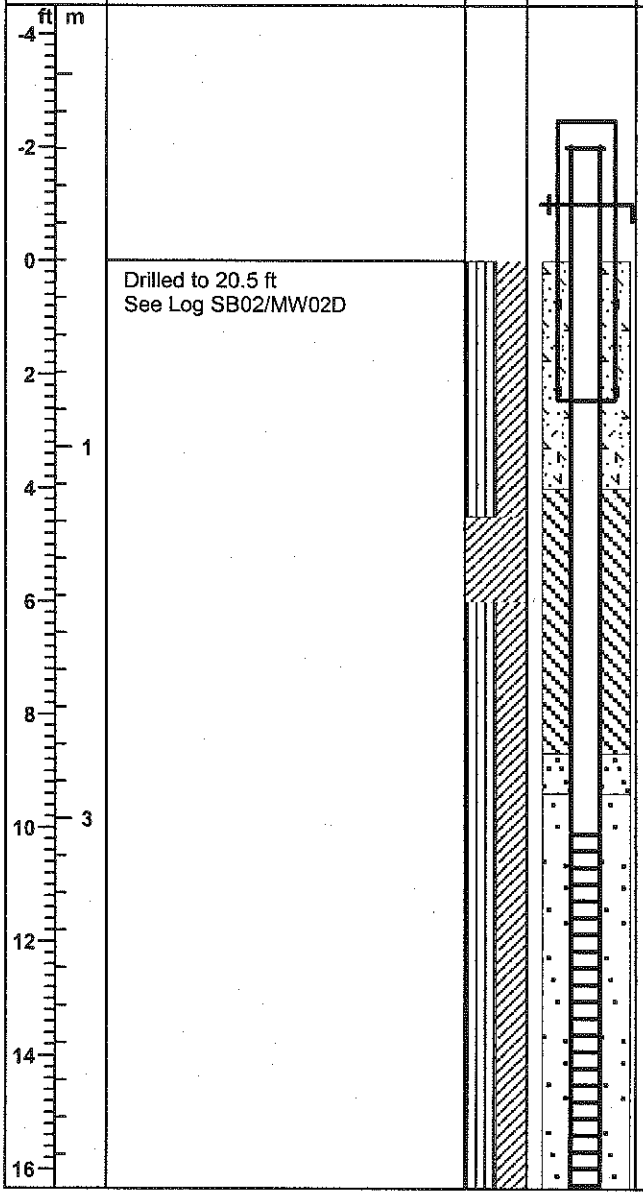
DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
58	**49.3-68.9' SILTY CLAY-CL** (Continued)			12	6'/6'	RC	M	NA	0	NA	
60	Trace fine to coarse gravel (angular to rounded) from 61.0-68.9 ft										
62	19			13	4'/4'	RC	M	NA	0	NA	
64											
66				14	4'/4'	RC	M	NA	0	NA	
68											
70	21 **68.9-69.6' SAND-SW** Gray, saturated, (angular to rounded), some silt										
72	**69.6-75.0' SILTY CLAY-CL** Gray, dry, w/ fine to coarse sand & fine gravel (angular to rounded) (till)			15	6'/6'	RC	S/D/M	NA	0	NA	
74	Lens of silty sand, gray, moist, fine from 72.6-72.8 ft Grades moist at 73.0 ft										Boring sloughed from 72.37 to 75.0 ft
76	23 **End of boring at 75.0 ft**										

Boring/Well No.: SB02/MW02D

Clayton GROUP SERVICES

BORING NO: SB02	WELL NO: MW02S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL
BORING LOCATION: East of WWT Ponds, across Co. Rd. 615 E			COORDINATES: 978306.947 E, 1141684.690 N
DRILLING CO: Boart-Longyear	DRILLER: D. Duscher		LOGGED BY: K. Comire
DRILLING EQUIP: Rotosonic Drill	SCREEN INTERVAL: 10.07-19.77 ft bgs		CHECKED BY: M. Nienkerk
STATIC WATER LEVEL: 673.40 ft (12/09/00)	SCREEN MTL/SLOT: Stainless Steel/0.010"		START DATE: 11/03/00
BOREHOLE DIA: 6"	STICKUP: 2.00 ft		START TIME (hours): 6:23
TOP of CASING ELEVATION: 676.50 ft	G.S. ELEVATION: 674.50 ft		FINISH DATE: 11/03/00
RISER DIA/MTL/LGTH: 2"/Stainless Steel/12.07 ft	DEV. METHODS: Submersible pump		FINISH TIME (hours): 9:42

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
ft / m	Drilled to 20.5 ft See Log SB02/MW02D										Grass Surface



Boring/Well No.: SB02/MW02S

Clayton GROUP SERVICES

BORING NO: SB02	WELL NO: MW02S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
18											
20 – 6											Boring sloughed from 20.07 to 20.50 ft
	End of boring at 20.5 ft										
22											
24											
26 – 8											
28											
30											
32											
34 – 10											
36											

Boring/Well No.: SB02/MW02S

Clayton GROUP SERVICES

BORING NO: SB02A	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL
BORING LOCATION: East of WWT Ponds, across Co. Rd. 615 E		COORDINATES: Not measured
DRILLING CO: Boart-Longyear		DRILLER: D. Duscher
DRILLING EQUIP: Rotosonic Drill		BOREHOLE DIA: 6"
START DATE: 11/02/00	FINISH DATE: 11/02/00	LOGGED BY: K. Comire
START TIME (hours): 07:35	FINISH TIME (hours): 15:35	CHECKED BY: M. Nienkerk

DEPTH (ft / m)	DESCRIPTION	GRAPHIC	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
-4 ft										
-2										
0	Drilled to 95.0 ft See Log SB02/MW02D for 0 to 75.0 ft									
2										
4 / 1 m										
6										
8										
10 / 3 m										
12										
14										
16										

Clayton
GROUP SERVICES

BORING NO: SB02A	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	SAMPLES					PID		REMARKS
			NUMBER	RECOVERY	METHOD	MOISTURE	BLOW CNT (6")	SCAN	HEADSPACE	
18										
20	6									
22										
24										
26	8									
28										
30										
32	10									
34										
36										

Clayton GROUP SERVICES

BORING NO: SB02A	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
38										
12										
40										
42										
	Lens of sand, grayish brown, saturated, fine with some silt from 43.2-44.0 ft at this location									
44										
46										
14										
48										
50										
52										
16										
54										
	Cobble at 55.0 ft at this location									
56										

Clayton
GROUP SERVICES

BORING NO: SB02A	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
58										
60										
62										
19										
64										
	Lens of sand, gray, saturated, some silt from 65.8-66.7 ft at this location									
66										
68										
21										
70										
72										
74										
23	**75.0-76.0' SAND-SP** Light gray, saturated, fine, trace silt									
76										

Clayton GROUP SERVICES

BORING NO: SB02A	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
78	**76.0-81.1' SAND-SW** Gray, saturated, (angular to rounded), trace silt and fine gravel (angular to subangular)									
80			1	8.5'/10'	RC	S/M	NA	0	NA	
82 — 25	**81.1-82.0' SILTY CLAY-CL** Gray, w/ trace orange mottles, moist with fine to coarse sand and fine gravel (subangular to rounded) (till)									
	82.0-83.9' SAND-SW Gray, saturated, some gravel (subangular to rounded) and some silt, (gravel primarily at 83.6-83.9 ft)									
84	**83.9-84.9' SILTY CLAY-CL** Gray w/ trace orange mottles, moist with fine to coarse sand (angular to rounded) (till)									
86	**84.9-86.1' SILT-ML** Gray, moist, trace clay Grades light brown w/ trace black mottles at 85.0 ft									
88 — 27	**86.1-95.0' SILTY CLAY-CL** Brown to dark brown w/ trace orange mottles, dry, w/ fine to coarse sand (angular to rounded), trace fine gravel (subangular to rounded) (till)		2	6'/6'	RC	M/D	NA	0	NA	
90										
92	With trace red mottling from 91.0-95.0 ft		3	4'/4'	RC	D	NA	0	NA	
94 — 29	**End of boring at 95.0 ft**									
96										

Clayton GROUP SERVICES

BORING NO: SB03	WELL NO: MW03D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL
BORING LOCATION: West of WWT Pond 1		COORDINATES: 977491.123 E, 1140927.766 N	
DRILLING CO: Boart-Longyear	DRILLER: D. Duscher	LOGGED BY: K. Comire	
DRILLING EQUIP: Rotosonic Drill	SCREEN INTERVAL: 73.90-78.60 ft bgs	CHECKED BY: M. Nienkerk	
STATIC WATER LEVEL: 656.20 ft (12/09/00)	SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/15/00	
BOREHOLE DIA: 6"	STICKUP: 2.32 ft	START TIME (hours): 09:11	
TOP of CASING ELEVATION: 675.63 ft	G.S. ELEVATION: 673.31 ft	FINISH DATE: 11/15/00	
RISER DIA/MTL/LGTH: 2"/Stainless Steel/76.22 ft	DEV. METHODS: Submersible pump	FINISH TIME (hours): 17:00	

DEPTH (ft / m)	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
-4 / -2											
0	**0-9.7' SILTY CLAY-CL** Dark brown, moist, with organic silt and some roots (topsoil from 0-0.4 ft)										Grass Surface
2 / 1	Grades brownish gray, moist, w/ orange fine sand inclusions (1/8"), some fine to coarse sand (angular to rounded), trace roots & organic silt (till)			1	2.8'/5'	RC	M	NA	0	NA	
4 / 6	Grades w/ orange mottles, trace fine to coarse sand (angular to rounded) at 5.0 ft			2	3.5'/5'	RC	M/S	NA	0	NA	Log SB03/MW03S incorporated into Log SB03/MW03D due to poor recovery from 5.0 to 10.0 ft
8	Lens of clayey sand, gray, moist, fine from 9.3-9.5 ft										
10 / 3	**9.7-10.8' SAND-SP** Black, saturated, fine, some medium to coarse sand & gravel, (angular to rounded), petroleum-like odor										Headspace analysis of sand indicated 6.5 ppm
12	**10.8-40.6' SILTY CLAY-CL** Brownish-gray w/ orange mottles (some black staining to 11.3 ft), moist, some fine to coarse sand and gravel, (subangular to rounded) (till)			3	5'/5'	RC	S/M	NA	0	NA	
14	Trace mottles at 13.5 ft										
16											

Boring/Well No.: SB03/MW03D

Clayton GROUP SERVICES

BORING NO: SB03	WELL NO: MW03D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
18	**10.8-40.6' SILTY CLAY-CL** (Continued) Grades gray w/ orange mottles from 15.0-17.0 ft Mottles grade out at 17.0 ft										
6											
20	Lens of silty clay, brown from 20.3-20.4 ft			4	9.8'/10'	RC	M	NA	0	NA	
22											
24											
26											
8											
28											
30				5	10'/10'	RC	M	NA	0	NA	
32											
10											
34											
36											

Clayton GROUP SERVICES

BORING NO: SB03	WELL NO: MW03D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
38	**10.8-40.6' SILTY CLAY-CL** (Continued)										
12											
40				6	10'/10'	RC	M	NA	0	NA	
	40.6-43.4' CLAYEY SILT-CL/ML Greenish gray, w/orange mottles, moist, w/fine to coarse sand & gravel (angular to subrounded) and orange fine sand inclusions (1/8-1/2") trace organic silt (interglacial)										
42											
	43.4-51.4' SILT-ML Gray, moist, w/ clay, trace fine to coarse sand & fine gravel (subangular to rounded), trace orange & brown, fine sand inclusions (1/8") (interglacial)										
44											
14											
46	W/ brown channels from 46.8-49.5 ft										
48											
50	Lens of organic silt, dark brown, moist w/ peat from 49.5-50.0 ft			7	10'/10'	RC	M/S/M	NA	0	NA	
	Grades saturated at 50.0 ft										
52	**51.4-54.1' SAND-SP** Gray, saturated, fine, trace med. sand (rounded) (interglacial) Some medium to coarse sand & gravel, trace silt at 52.7 ft										
16											
54	Lens of silty clay, gray, moist, from 52.8-52.9 ft										
	54.1-63.1' CLAYEY SILT-CL/ML Gray, moist, w/ fine to coarse sand & gravel (subangular to rounded) (till)										
56	Grades grayish brown at 55.0 ft										

Clayton GROUP SERVICES

BORING NO: SB03	WELL NO: MW03D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
58	**54.1-63.1' CLAYEY SILT-CL/ML** (Continued)										
60	Lens of sand, gray, saturated, fine from 60.9-61.1 ft Cobble from 61.1-61.3 ft Trace roots from 61.3-63.1 ft			8	9'/10'	RC	M/S/M	NA	0	NA	
62	19										
64	**63.1-66.0' SILT-ML** Gray, saturated, trace fine to coarse sand, (angular to rounded) & clay (till) Grades to moist at 63.9 ft W/ sand from 65.0-66.0 ft										
66	**66.0-66.6' SAND-SP** Grey, saturated, fine										
68	**66.6-72.8' CLAYEY SILT-CL/ML** Grayish brown, moist, some fine to coarse sand & gravel, (angular to rounded) (till)			9	5'/5'	RC	M/S/M	NA	0	NA	
70	21 Cobble from 67.9-68.2 ft										
72											
74	**72.8-73.5' SAND-SW** Gray, saturated (subangular to rounded)										
76	**73.5-79.5' SAND-SP** Grayish brown, saturated, fine, trace medium to coarse sand & fine gravel (subangular to rounded) 23			10	9.8'/10'	RC	M/S/M	NA	0	NA	

Boring/Well No.: SB03/MW03D

Clayton GROUP SERVICES

BORING NO: SB03	WELL NO: MW03D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
78	**73.5-79.5' SAND-SP** (Continued) Lenses of sand, fine to coarse (angular to rounded) from 74.6-74.9 ft and 77.1-77.7 ft W/ medium to coarse sand & fine gravel, (angular to rounded) from 75.9-78.2 ft										
80	**79.5-80.0' SILT-ML** Grayish brown, moist										Boring sloughed from 78.90 to 85.5 ft
	80.0-81.1' CLAYEY SILT-CL/ML Gray, moist, some fine to coarse sand & gravel (angular to rounded) (till)										
82 — 25	**81.1-81.9' SAND-SP** Grayish brown, saturated, fine, trace medium to coarse sand (subangular to rounded)			11	5'/5'	RC	M/S/M	NA	0	NA	
84	**81.9-85.5' CLAYEY SILT-CL/ML** Brown, moist, some fine to coarse sand & gravel (angular to rounded) w/ trace orange & yellow fine sand inclusions (1/8"-1.0") (till)										
86	**End of boring at 85.5 ft**										
88 — 27											
90											
92											
94 — 29											
96											

Boring/Well No.: SB03/MW03D

Clayton GROUP SERVICES

BORING NO: SB03	WELL NO: MW03S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL
BORING LOCATION: West of WWT Pond 1			COORDINATES: 977487.159 E, 1140923.546 N
DRILLING CO: Boart-Longyear		DRILLER: D. Duscher	LOGGED BY: K. Comire
DRILLING EQUIP: Rotosonic Drill		SCREEN INTERVAL: 4.59-14.29 ft bgs	CHECKED BY: M. Nienkerk
STATIC WATER LEVEL: 669.15 ft (12/09/00)		SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/16/00
BOREHOLE DIA: 6"		STICKUP: 2.13 ft	START TIME (hours): 07:15
TOP of CASING ELEVATION: 675.54 ft		G.S. ELEVATION: 673.41 ft	FINISH DATE: 11/16/00
RISER DIA/MTL/LGTH: 2"/Stainless Steel/6.72 ft		DEV. METHODS: Submersible pump	FINISH TIME (hours): 09:26

DEPTH (ft)	DEPTH (m)	DESCRIPTION	GRAPHIC	WELL	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
-4												
-2												
0		Drilled to 15.0 ft See Log SB03/MW03D										Grass Surface
2												
4	1											
6												
8												
10	3											
12												
14												Boring sloughed from 14.59 to 15.0 ft
16		End of Boring at 15.0 ft										

Boring/Well No.: SB03/MW03S

Clayton GROUP SERVICES

BORING NO: SB04	WELL NO: MW04D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL
BORING LOCATION: South of WWT Ponds 1 & 2			COORDINATES: 977244.444 E, 1141453.441 N
DRILLING CO: Boart-Longyear		DRILLER: D. Duscher	LOGGED BY: K. Comire
DRILLING EQUIP: Rotosonic Drill		SCREEN INTERVAL: 98.80 - 103.50 ft bgs	CHECKED BY: M. Nienkerk
STATIC WATER LEVEL: 656.03 ft (12/09/00)		SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/8/00
BOREHOLE DIA: 6"		STICKUP: 2.04 ft	START TIME (hours): 10:15
TOP of CASING ELEVATION: 681.29 ft		G.S. ELEVATION: 679.25 ft	FINISH DATE: 11/9/00
RISER DIA/MTL/LGTH: 2"/Stainless Steel/100.84 ft		DEV. METHODS: Submersible pump	FINISH TIME (hours): 9:00

DEPTH (ft / m)	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
-4 / -2											
0	0-0.1' ROOTS										Grass Surface
2 / 1	**0.1-14.2' FILL** Silty clay, light brown w/ orange & black mottles, moist, trace fine to coarse sand (angular to subrounded), organic silt, fine sand inclusions (1/8")			1	3'/5'	RC	M	NA	0	NA	
4	Grades to clay, light brown, w/ white mottles, moist, w/ silt from 7.0-8.7 ft										
6	Grades to silty clay, light gray, moist, w/ orange fine sand inclusions (1/8"), trace fine to coarse sand (angular to subangular) at 8.7 ft			2	3'/5'	RC	NA	NA	M	0	
8	W/ organic silt from 8.8-8.9 ft										
10 / 3	Grades black w/ organic silt at 9.5 ft										
12	Grades to clay, brown, moist, w/ silt & trace fine to coarse sand (subangular to rounded) at 10.6 ft			3	4.3'/5'	RC	M	NA	0	NA	
14	Grades to light brown w/ white mottles from 12.0-14.0 ft										
16	Lens of organic silty clay, black, moist, trace roots from 14.0-14.2 ft										

Boring/Well No.: SB04/MW04D

Clayton GROUP SERVICES

BORING NO: SB04	WELL NO: MW04D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
18	**14.2-47.7' SILTY CLAY-CL** Grayish brown, w/ some black mottles, moist, some organic silt, trace roots (till)										
	Grades to brown, trace fine to coarse sand (subang.) at 14.7 ft										
	Lens of sand, light brown, saturated, fine to coarse (angular to subrounded) from 17.9-18.3 ft										
20 (6)	Grades trace dark gray mottles, some fine to coarse sand & fine gravel (angular to subrounded) at 18.3 ft			4	7.7'/10'	RC	M	NA	0	NA	
	Some orange mottles from 15.0-20.0 ft										
22	Dark brown clay inclusions (1/8-1/4") at 21.8 ft										
	Grades gray w/ orange mottles at 23.1 ft										Grain-size, bulk density, pH, moisture and total organic carbon sample at 23.5 ft
24	Mottles grade out at 24.8 ft										
26 (8)											
28											
30				5	10'/10'	RC	M	NA	0	NA	
32 (10)											
34											
36											

Boring/Well No.: SB04/MW04D

Clayton GROUP SERVICES

BORING NO: SB04	WELL NO: MW04D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
38	**14.2-47.7' SILTY CLAY-CL** (Continued)										
12											
40				6	9.7'/10'	RC	M	NA	0	NA	
42											
44											
	W/ orange mottles from 45.0-47.7 ft										
46 14											
48	**47.7-57.0' CLAYEY SILT-CL/ML** Greenish gray, moist, some fine to coarse sand & fine gravel (angular to subrounded) w/ light yellowish brown fine sand inclusions (1/4-1/2") (interglacial)										
50	Grades gray, no inclusions at 48.8 ft			7	10'/10'	RC	M	NA	0	NA	
52	Lenses of silt, gray, moist, w/ some clay, and organic silt, trace roots, trace fine to coarse sand, from 53.1-54.0, 54.7-55.0, and 56.5-57.0 ft										
16 54											
	Grades saturated w/ fine to coarse sand (angular to subrounded) at 55.0 ft										
56											

Clayton GROUP SERVICES

BORING NO: SB04	WELL NO: MW04D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
78	**58.5-79.9' CLAYEY SILT-CL/ML** (Continued) Lens of sand, grayish brown, saturated, very fine, some silt from 79.0-79.3 ft Lens of clay, gray, moist, some silt, from 79.3-79.9 ft			11	8'/8'	RC	M/S	NA	0	NA	
80	**79.9-81.4' SAND-SW** Grayish brown, saturated, w/ some fine to medium gravel (angular to rounded)										
82 — 25	**81.4-90.9' SAND-SP** Grayish brown, saturated, fine, w/ some medium to coarse sand (subangular to subrounded)										
84											
86											Grain-size, non-volatile organic carbon, pH and moisture sample from 83.0 to 86.0 ft
88				12	8.7'/10'	RC	S	NA	0	NA	
27											
90	Lens of sand, fine to coarse, from 89.5-89.8 ft										
92	**90.9-92.1' SAND-SW** Gray, saturated, w/ some fine to medium gravel (angular to subrounded)										
	92.1-97.0' SILTY SAND-SM Grayish brown, saturated, some clay										
94											
29											
96											

Boring/Well No.: SB04/MW04D

Clayton GROUP SERVICES

BORING NO: SB04	WELL NO: MW04D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
	47.7-57.0' CLAYEY SILT-CL/ML (continued)										
58	**57.0-58.5' SAND-SP** Gray, saturated, fine, tr silt Lens of sand, fine to coarse, from 57.6-57.9 ft										
60	**58.5-79.9' CLAYEY SILT-CL/ML** Gray, moist, some fine to coarse sand & gravel (angular to rounded) (till)			8	9'/10'	RC	M/S/M	NA	0	NA	Grain-size, non-volatile organic carbon, pH and moisture sample at 58.0 ft
62	Lens of sand, gray, saturated, fine, from 60.8-61.0 ft										
	19										
64											
66	Lens of sand, gray, saturated, from 64.8-65.0 ft			9	5'/5'	RC	M	NA	0	NA	Grain-size, bulk density, pH, moisture and total organic carbon sample at 66.0 ft
68											
	21										
70	Lens of silt, gray, moist, some clay, from 70.2-70.9 ft										
72				10	4.8'/5'	RC	M	NA	0	NA	
74											
	23										
76											

Clayton GROUP SERVICES

BORING NO: SB04	WELL NO: MW04D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

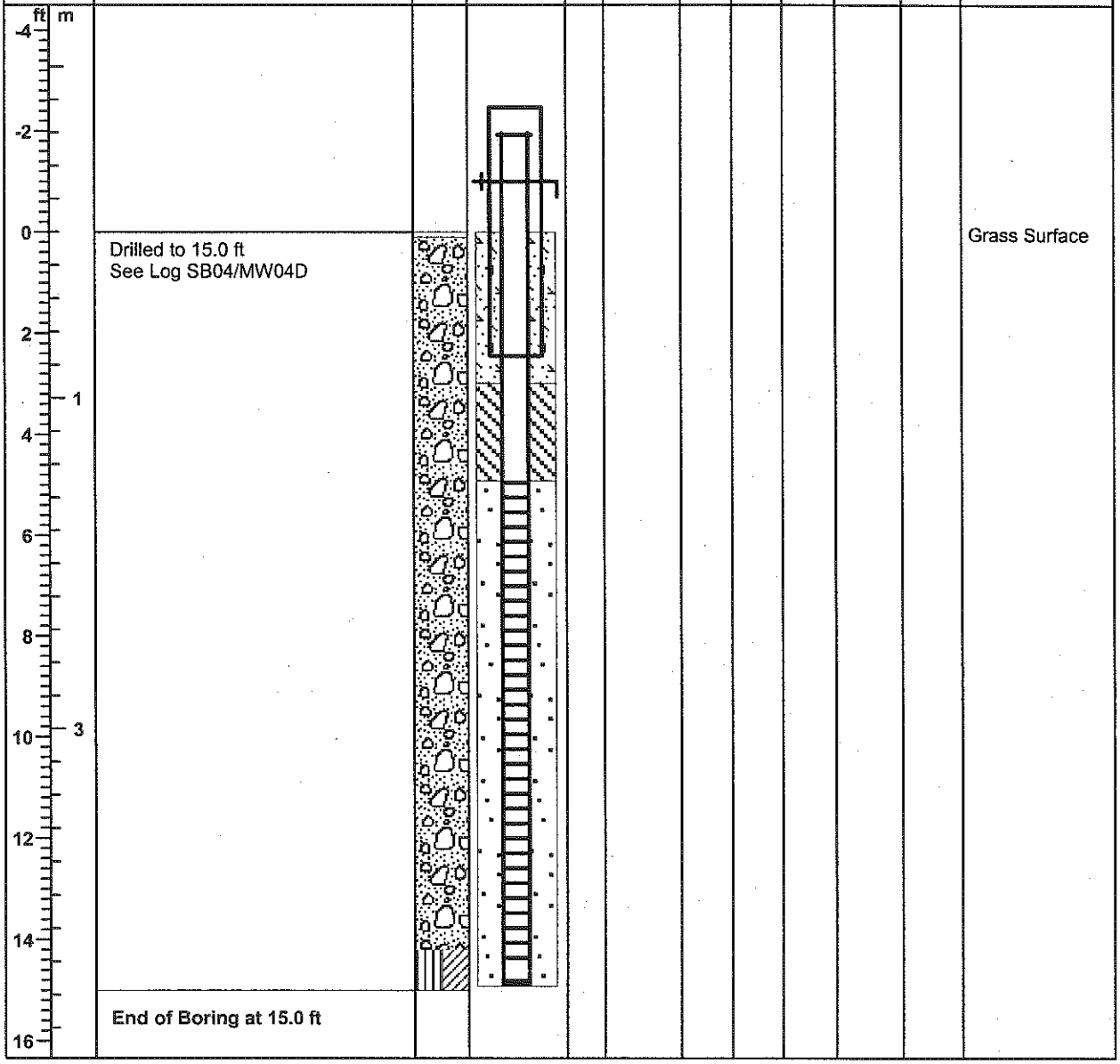
DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
98	**92.1-97.0' SILTY SAND-SM** (Continued)										
	97.0-98.0' SILT-ML Gray, moist, some clay Lens of clay, gray, moist, trace silt from 97.6-98.0 ft			13	8.3'/10.8'	RC	S/M	NA	0	NA	
100	**98.0-101.4' SAND-SW** Gray, saturated, w/ fine to coarse gravel (angular to rounded) Lens of sand, grayish brown, fine, from 100.6-100.8 ft										
102	31 **101.4-103.8' CLAYEY SILT-CL/ML** Brown, moist, some fine to coarse sand & fine gravel (subangular to subrounded)										
104	**End of Boring at 103.8 ft**										
106											
108	33										
110											
112											
114											
116	35										

Boring/Well No.: SB04/MW04D

Clayton GROUP SERVICES

BORING NO: SB04	WELL NO: MW04S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL
BORING LOCATION: South of WWT Ponds 1 & 2			COORDINATES: 977251.253 E, 1141452.904 N
DRILLING CO: Boart-Longyear		DRILLER: D. Duscher	LOGGED BY: K. Comire
DRILLING EQUIP: Rotosonic Drill		SCREEN INTERVAL: 4.92-14.62 ft bgs	CHECKED BY: M. Nienkerk
STATIC WATER LEVEL: 668.06 ft (12/09/00)		SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/18/00
BOREHOLE DIA: 6"		STICKUP: 1.93 ft	START TIME (hours): 07:57
TOP of CASING ELEVATION: 681.06 ft		G.S. ELEVATION: 679.13 ft	FINISH DATE: 11/18/00
RISER DIA/MTL/LGTH: 2"/Stainless Steel/6.85 ft		DEV. METHODS: Bailer	FINISH TIME (hours): 10:25

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
ft / m	Drilled to 15.0 ft See Log SB04/MW04D										Grass Surface
	End of Boring at 15.0 ft										



Boring/Well No.: SB04/MW04S

Clayton GROUP SERVICES

BORING NO: SB05	WELL NO: MW05D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL
BORING LOCATION: West of Fresh Water Pond		COORDINATES: 975781.687 E, 1141559.080 N	
DRILLING CO: Boart-Longyear		DRILLER: D. Duscher	LOGGED BY: K. Comire
DRILLING EQUIP: Rotosonic Drill		SCREEN INTERVAL: 80.50 - 82.70 ft bgs	CHECKED BY: M. Nienkerk
STATIC WATER LEVEL: 655.95 ft (12/09/00)		SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/16/00
BOREHOLE DIA: 6"		STICKUP: 2.15 ft	START TIME (hours): 11:26
TOP of CASING ELEVATION: 674.48 ft		G.S. ELEVATION: 672.33 ft	FINISH DATE: 11/17/00
RISER DIA/MTL/LGTH: 2"/Stainless Steel/82.65 ft		DEV. METHODS: Submersible pump	FINISH TIME (hours): 10:11

DEPTH (ft / m)	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	RECOVERY	METHOD	MOISTURE	BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
0											Grass Surface
0	**0-12.8' FILL** Clayey silt, dark brown, moist, (topsoil from 0-0.2 ft)										
2	Sand & gravel, grayish brown, moist (angular to subangular) from 0.2-1.0 ft			1	2'/5'	RC	M	NA	0	NA	
1 / 4	Grades to silty clay, grayish brown w/orange mottles, moist, some fine to coarse sand & fine gravel (angular to rounded) at 1.0 ft										
6				2	2.4'/5'	RC	M	NA	0	NA	
8	Trace black mottles from 9.5-10.0 ft										
10 / 3	Grades to brown w/ orange mottles & orange fine sand inclusions (1/8 to 1/4") at 10.0 ft										
12				3	3.7'/5'	RC	M	NA	0	NA	
12	**12.8-40.0 SILTY CLAY-CL** Brown w/orange & gray mottles, moist, some fine to coarse sand & fine gravel (angular to rounded) (till)										
14											
16											

Boring/Well No.: SB05/MW05D

Clayton GROUP SERVICES

BORING NO: SB05	WELL NO: MW05D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
18	**12.8-40.0 SILTY CLAY-CL** (Continued)			4	4'/5'	RC	M	NA	0	NA	
20 (6)	Some black mottles from 19.0-19.5 ft Grades grayish brown, w/orange & black mottles & orange fine sand inclusions (1/8") from 20.0-26.6 ft			5	3.1'/5'	RC	NA	NA	M	0	
26 (8)	Grades gray w/ trace orange mottles & w/ orange fine sand inclusions (1/8-1") at 26.6 ft			6	9.7'/10'	RC	M	NA	0	NA	
30	Lens of silt, gray, moist, some clay from 32.4-33.1 ft Lens of sand, grayish brown, saturated, fine, from 32.8-32.9 ft										
32 (10)	Lens of silt, grayish brown, moist, from 33.1-33.2 ft										
34											
36											

Boring/Well No.: SB05/MW05D

Clayton GROUP SERVICES

BORING NO: SB05	WELL NO: MW05D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
38	**12.8-40.0 SILTY CLAY-CL** (Continued) Lens of organic silt, dark brown, moist, w/ 1/8" lens of peat, from 39.9-40.0 ft (interglacial)										
40	**40.0-41.6' CLAYEY SILT-CL/ML** Greenish gray w/orange & dark gray mottles, moist, some fine to coarse sand & gravel (angular to rounded) (interglacial)			7	10'/10'	RC	M	NA	0	NA	
42	**41.6-43.7' SILT-ML** Greenish gray w/ orange mottles, moist, with some clay, trace fine to coarse sand (angular to rounded) (interglacial) Grades gray at 42.9 ft										
44	**43.7-47.2' CLAYEY SILT-CL/ML** Gray, moist, some fine to coarse sand & gravel (angular to rounded), trace roots (interglacial) Grades dark brown at 44.4 ft										
46											
48	**47.2-48.9' SILT-ML** Gray, moist, w/ peat, some clay (interglacial) Grades to some peat at 48.3 ft										
50	**48.9-73.0' CLAYEY SILT-CL/ML** Gray, moist, w/ fine to coarse sand & gravel (angular to rounded) (till)			8	10'/10'	RC	M	NA	0	NA	
52											
54	Lens of sand, gray, saturated, fine from 55.5-56.0 ft										
56											

Clayton GROUP SERVICES

BORING NO: SB05	WELL NO: MW05D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
58	**48.9-73.0' CLAYEY SILT-CL/ML** (Continued)										
60				9	9.3'/10'	RC	M	NA	0	NA	
62	Pale green from 61.3-61.4 ft Grades grayish brown at 61.5 ft										
19											
64											
66											
68				10	7'/7'	RC	M	NA	0	NA	
21											
70											
72											
74	**73.0-73.4' SAND-SP** Brown, saturated, fine **73.4-74.5' SAND-SW** Grayish brown, saturated (subangular to rounded)										
23											
76											

Boring/Well No.: SB05/MW05D

Clayton GROUP SERVICES

BORING NO: SB05	WELL NO: MW05D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
78	**74.5-78.7' SAND-SP** Brown, saturated, fine w/ medium to coarse sand & fine gravel (angular to rounded)			11	8'/10'	RC	M/S	NA	0	NA	
80	**78.7-79.9' SILT-ML** Grayish brown, saturated, some clay										
82	**79.9-83.0' SAND-SP** Brown, saturated, fine w/ medium to coarse sand & fine gravel (angular to rounded)										
25	Grades to some medium to coarse sand & fine gravel from 79.9-82.0 ft										
84	**83.0-86.0' CLAYEY SILT-CL/ML** Gray, moist, w/ some fine to coarse sand & gravel (angular to rounded) (till)			12	4'/4'	RC	S/M	NA	0	NA	Boring sloughed from 83.0 to 86.0 ft
	Lens of silt, brown, moist, from 84.7-85.5 ft										
86	Grades dark brown at 85.5 ft										
	End of Boring at 86.0 ft										
88											
27											
90											
92											
94											
29											
96											

Boring/Well No.: SB05/MW05D

Clayton GROUP SERVICES

BORING NO: SB05	WELL NO: MW05S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL
BORING LOCATION: West of Fresh Water Pond			COORDINATES: 975780.923 E, 1141564.346 N
DRILLING CO: Boart-Longyear		DRILLER: D. Duscher	LOGGED BY: K. Comire
DRILLING EQUIP: Rotosonic Drill		SCREEN INTERVAL: 14.36-24.06 ft bgs	CHECKED BY: M. Nienkerk
STATIC WATER LEVEL: 663.57 ft (12/09/00)		SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/17/00
BOREHOLE DIA: 6"		STICKUP: 2.21 ft	START TIME (hours): 10:33
TOP of CASING ELEVATION: 674.47 ft		G.S. ELEVATION: 672.26 ft	FINISH DATE: 11/17/00
RISER DIA/MTL/LGTH: 2"/Stainless Steel/16.57 ft		DEV. METHODS: Submersible pump	FINISH TIME (hours): 14:01

DEPTH (ft / m)	DESCRIPTION	GRAPHIC	WELL	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
-4 ft											Grass Surface
-2											
0	Drilled to 25.0 ft See Log SB05/MW05D										
2											
1 m											
4											
6											
8											
10											
3 m											
12											
14											
16											

Boring/Well No.: SB05/MW05S

Clayton GROUP SERVICES

BORING NO: SB05	WELL NO: MW05S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
18											
20 – 6											
22	Lens of sand, brown, saturated, fine from 23.3-23.5 ft at this location										
	Lenses of sand, brown, saturated, fine, 1/2" at 23.7 ft, 1/4" at 23.9 and 24.0 ft at this location										Boring sloughed from 24.36 to 25.0 ft
24	**End of Boring at 25.0 ft**										
26 – 8											
28											
30											
32											
34 – 10											
36											

Boring/Well No.: SB05/MW05S

Clayton GROUP SERVICES

BORING NO: SB06	WELL NO: MW06D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL
BORING LOCATION: West of WWT Pond 8		COORDINATES: 975477.039 E, 1142127.639 N	
DRILLING CO: Boart-Longyear	DRILLER: D. Duscher	LOGGED BY: K. Comire	
DRILLING EQUIP: Rotosonic Drill	SCREEN INTERVAL: 66.60 - 71.30 ft bgs	CHECKED BY: M. Nienkerk	
STATIC WATER LEVEL: 655.83 ft (12/09/00)	SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/5/00	
BOREHOLE DIA: 6"	STICKUP: 1.70 ft	START TIME (hours): 07:08	
TOP of CASING ELEVATION: 664.20 ft	G.S. ELEVATION: 662.50 ft	FINISH DATE: 11/5/00	
RISER DIA/MTL/LGTH: 2"/Stainless Steel/68.30 ft	DEV. METHODS: Submersible pump	FINISH TIME (hours): 14:17	

DEPTH (ft / m)	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
-4 / -2											
0	0-0.1' ROOTS										Grass Surface
2 / 1	**0.1-13.2' SILTY CLAY-CL** Grayish brown w/ trace orange mottles, moist, some fine to coarse sand (angular to rounded), trace roots (till)			1	4.6'/5'	RC	M	NA	0	NA	
4	Lens of clayey sand, brown, moist, from 1.7-1.9 ft										
	Grades brown at 2.2 ft										
6	Grades w/orange mottles & trace fine gravel at 5.5 ft			2	5'/5'	RC	M	NA	0	NA	Grain-size, bulk density, pH, moisture and total organic carbon sample at 5.0 ft
8											
10 / 3											
12				3	4.6'/5'	RC	M	NA	0	NA	
14	**13.2-16.6' SILT-ML** Light brown w/ gray channels (leached) & trace orange mottles, moist, trace clay & fine to coarse sand & fine gravel (till)										
16											

Boring/Well No.: SB06/MW06D

Clayton GROUP SERVICES

BORING NO: SB06	WELL NO: MW06D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
	Grades to some clay at 16.1 ft										
18	**16.6-33.4' SILTY CLAY-CL** Gray, w/orange mottles, moist, with fine to coarse sand and fine gravel (angular to rounded) (till)			4	4.6'/5'	RC	M	NA	0	NA	
20 (6)	Lens of silt, light brown, moist, from 19.7-19.8 ft										
22				5	3.4'/5'	RC	M	NA	0	NA	
24											
26 (8)				6	5'/5'	RC	M	NA	0	NA	
28											
30	W/orange fine sand inclusions (1/8-1/4") at 29.9 ft										
32 (10)				7	5'/5'	RC	M	NA	0	NA	Grain-size, bulk density, non volatile organic carbon, pH and moisture sample at 35.5 ft
34	**33.4-35.5' CLAYEY SILT-CL/ML** Gray, w/ trace orange mottles, moist, w/ some fine to coarse sand (subangular to rounded) (till)										
36											

Boring/Well No.: SB06/MW06D

Clayton GROUP SERVICES

BORING NO: SB06	WELL NO: MW06D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
38	**35.5-40.0' SILT-ML** Dark brown, moist, w/ organic silt & trace roots, trace fine to coarse sand & gravel (subangular to rounded) (interglacial) Trace organic silt from 36.2-36.4 ft Organic silt grades out at 39.2 ft W/ fine sand at 39.2 ft			8	4.5'/5'	RC	M	NA	0	NA	
40	**40.0-62.9' CLAYEY SILT-CL/ML** Gray, moist, w/ fine sand, some medium to coarse sand (angular to rounded) & fine to coarse gravel (subrounded) (till)			9	5'/5'	RC	M	NA	0	NA	Grain-size, bulk density, pH, moisture and total organic carbon sample at 42.0 ft
46				10	4.2'/5'	RC	M	NA	0	NA	
50				11	4.7'/5'	RC	M	NA	0	NA	
54											
56											

Boring/Well No.: SB06/MW06D

Clayton GROUP SERVICES

BORING NO: SB06	WELL NO: MW06D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

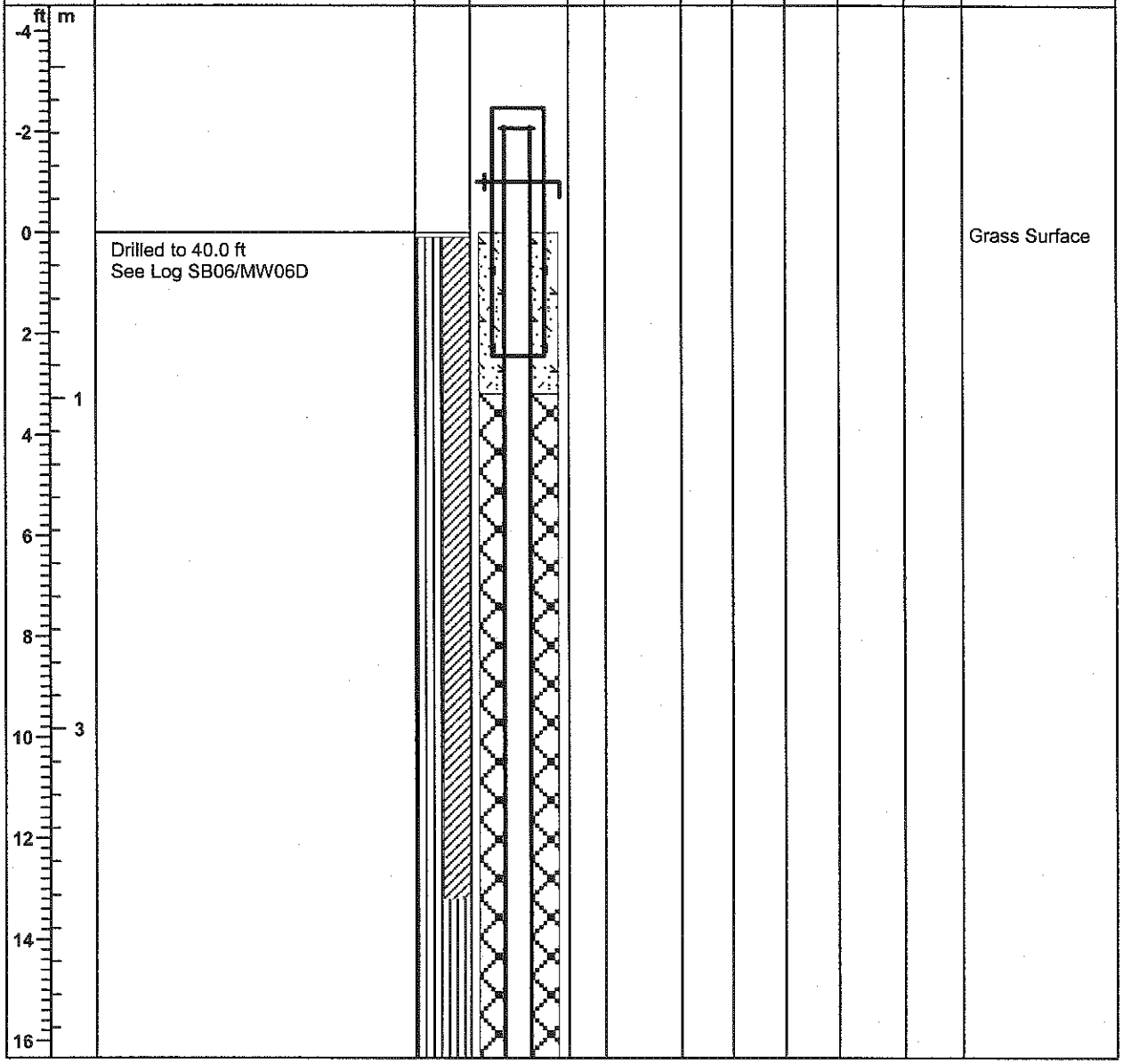
DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
58	**40.0-62.9' CLAYEY SILT-CL/ML** (Continued)			12	6'/6'	RC	M	NA	0	NA	
60											
62											
19											
64	**62.9-65.0' SAND-SP** Grayish brown, saturated, fine, trace silt Grades to fine to medium w/ trace coarse sand & fine gravel at 64.2 ft										
66	**65.0-67.4' SAND-SW** Grayish brown, saturated (subangular to rounded) w/ trace fine gravel (subrounded)			13	8.8'/9'	RC	M/S	NA	0	NA	Grain-size, non volatile organic carbon, pH and moisture sample at 66.0 ft
68	**67.4-71.3' SAND-SP** Grayish brown, saturated, fine to medium, w/ trace coarse sand & fine gravel (subangular to rounded)										
21											
70											
72	**71.3-75.0' CLAYEY SILT-CL/ML** Gray, moist, some fine to coarse sand (subangular to rounded), trace fine to coarse gravel (angular to subrounded) (till)			14	5'/5'	RC	0	NA	NA	S/M	Boring sloughed from 71.60 to 75.0 ft
74											
23	**End of Boring at 75.0 ft**										
76											

Boring/Well No.: SB06/MW06D

Clayton GROUP SERVICES

BORING NO: SB06	WELL NO: MW06S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL
BORING LOCATION: West of WWT Pond 8			COORDINATES: 975474.709 E, 1142133.447 N
DRILLING CO: Boart-Longyear		DRILLER: D. Duscher	LOGGED BY: K. Comire
DRILLING EQUIP: Rotosonic Drill		SCREEN INTERVAL: 30.00-39.70 ft bgs	CHECKED BY: M. Nienkerk
STATIC WATER LEVEL: 655.43 ft (12/09/00)		SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/5/00
BOREHOLE DIA: 6"		STICKUP: 2.04 ft	START TIME (hours): 14:31
TOP of CASING ELEVATION: 664.46 ft		G.S. ELEVATION: 662.42 ft	FINISH DATE: 11/6/00
RISER DIA/MTL/LGTH: 2"/Stainless Steel/32.04 ft		DEV. METHODS: Submersible pump	FINISH TIME (hours): 13:47

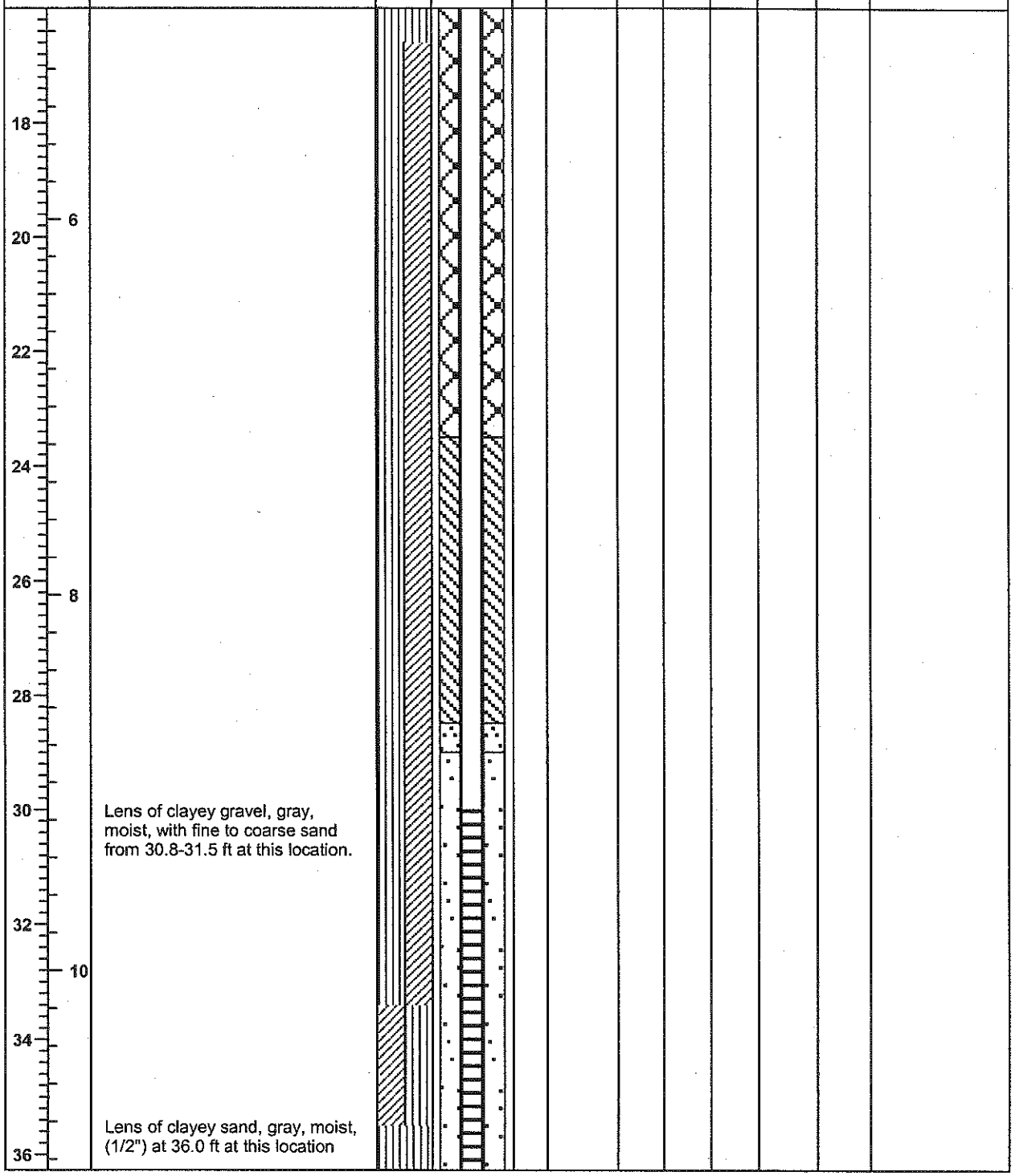
DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
ft / m	Drilled to 40.0 ft See Log SB06/MW06D										Grass Surface



Boring/Well No.: SB06/MW06S

Clayton
GROUP SERVICES

BORING NO: SB06	WELL NO: MW06S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL



Boring/Well No.: SB06/MW06S

Clayton GROUP SERVICES

BORING NO: SB06	WELL NO: MW06S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
38	Lens of silt, gray, moist, w/ some clay from 37.0-37.3 ft at this location Lens of peat, dark brown, moist, from 37.3-38.0 ft w/ lens of silt (3/4") gray, moist, at 37.5 ft at this location Lens of silt, gray, moist, some fine to coarse sand and fine gravel from 38.0-38.5 ft at this location										
12											
40	**38.5-40.0' CLAYEY SILT-CL\ML** Gray, moist, w/ fine sand, some medium to coarse sand (angular to rounded) and fine to coarse gravel (subrounded)										
42	**End of Boring at 40.0 ft**										
44											
46											
14											
48											
50											
52											
16											
54											
56											

Boring/Well No.: SB06/MW06S

Clayton GROUP SERVICES

BORING NO: SB07	WELL NO: MW07D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL
BORING LOCATION: NW corner of WWT Pond 7		COORDINATES: 975434.138 E, 1142472.021 N	
DRILLING CO: Boart-Longyear		DRILLER: D. Duscher	LOGGED BY: K. Comire
DRILLING EQUIP: Rotosonic Drill		SCREEN INTERVAL: 68.54-73.24 ft bgs	CHECKED BY: M. Nienkerk
STATIC WATER LEVEL: 655.86 ft (12/09/00)		SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/6/00
BOREHOLE DIA: 6"		STICKUP: 2.11 ft	START TIME (hours): 14:39
TOP of CASING ELEVATION: 666.13 ft		G.S. ELEVATION: 664.02 ft	FINISH DATE: 11/7/00
RISER DIA/MTL/LGTH: 2"/Stainless Steel/70.65 ft		DEV. METHODS: Submersible Pump	FINISH TIME (hours): 10:53

DEPTH (ft / m)	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
-4 / -2 / 0											Grass Surface
0	0-0.1' ROOTS										
2 / 1 / 4	**0.1-31.8' SILTY CLAY-CL** Light brown, with orange mottles, moist, trace fine to coarse sand (angular to subangular), trace roots (till)			1	5'/5'	RC	M	NA	0	NA	
4	Lens of organic silt, black, moist from 1.8 to 2.2 ft										
6	With fine to coarse sand and fine gravel (subangular to rounded) from 9.6 to 10.0 ft										
8	Grades brown with some orange mottles, some fine to coarse sand and fine gravel (angular to										
10 / 3	rounded) with gray clay inclusions (1/4") at 10.0 ft			2	5'/10'	RC	M	NA	0	NA	
12	Trace orange mottles at 12.5 ft										
14	Grades gray at 15.0 ft										
16											

Boring/Well No.: SB07/MW07D

Clayton GROUP SERVICES

BORING NO: SB07	WELL NO: MW07D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
18	**0.1-31.8' SILTY CLAY-CL** (Continued)										
20 (6)				3	10'/10'	RC	M	NA	0	NA	
22											
24											
26 (8)											
28											
30	Lens of organic silt, dark brown, moist (with 1/8" peat lens) from 31.3 to 31.6 ft (interglacial)			4	5.8'/10'	RC	M	NA	0	NA	
32 (10)	**31.8-34.7' ORGANIC SILTY CLAY-OL** Dark brown/black, moist (inter.) Lens of peat, dark brown, moist from 32.6 to 32.9 ft Lenses of alternating organic silt and clay (1/8 to 1/4") from 34.6 to 34.7 ft										
34	**34.7-42.0' CLAY-CL** Gray, moist, some silt, trace fine sand (angular) (till)										
36											

Boring/Well No.: SB07/MW07D

Clayton GROUP SERVICES

BORING NO: SB07	WELL NO: MW07D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
38	**34.7-42.0' CLAY-CL** (Continued) Lens of silt, gray, moist with gray clay lenses (1/8 to 1/4") from 36.3 to 36.6 ft Grades to silty clay with some fine to coarse sand (angular to rounded) at 36.6 ft			5	9.2'/10'	RC	NA	NA	M	0	
40	12										
42	**42.0-56.5' CLAYEY SILT-CL/ML** Gray, moist, with fine to coarse sand (angular to rounded) (till)										
44											
46	14										
48											
50	Lenses of sand, gray, saturated, fine from 49.8 to 50.0, 53.9 to 54.0 and 54.8 to 55.0 ft			6	8'/10'	RC	M	NA	0	NA	
52	16										
54											
56											

Clayton GROUP SERVICES

BORING NO: SB07	WELL NO: MW07D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	RECOVERY	METHOD	MOISTURE	BLOW CNT (6")	PID SCAN	HEADSPACE	REMARKS
58	**56.5-57.7' SAND-SP** Gray, saturated, fine, with silt Grades to some medium to coarse sand, trace silt at 57.0 ft										
	57.7-59.0' CLAYEY SILT-CL/ML Gray, moist, with fine to coarse sand (angular to rounded) (till)			7	8'/8'	RC	M/S/M	NA	0	NA	
60	**59.0-60.0' SILT-ML** Gray, moist										
	60.0-64.2' CLAYEY SILT-CL/ML Gray, moist, with fine to coarse sand (angular to rounded) (till)										
62	19										
64	**64.2-65.3' SILT-ML** Gray, moist, some clay										
	65.3-68.4' SAND-SP Gray, saturated, fine, with trace medium to coarse sand, (subangular to rounded) and silt			8	6'/6'	RC	M/S	NA	0	NA	
68											
	68.4-71.6' SAND-SW Gray, saturated, trace fine gravel, (subangular to rounded)										
70	21										
72	**71.6-73.2' SAND-SP** Gray, saturated, fine, with trace medium to coarse sand (subangular) and silt Lens of sand, fine to coarse from 72.9-73.2 ft										
74	**73.2-79.0' CLAYEY SILT-CL/ML** Gray, moist, with fine to coarse sand and gravel (subangular to rounded) (till)			9	9.6'/10'	RC	S/M	NA	0	NA	
	23										
76											

Boring/Well No.: SB07/MW07D

Clayton GROUP SERVICES

BORING NO: SB07	WELL NO: MW07D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
78	**73.2-79.0' CLAYEY SILT-CL/ML** (Continued)										Boring sloughed from 73.54 to 79.0 ft
	End of Boring at 79.0 ft										
80											
82	25										
84											
86											
88											
	27										
90											
92											
94											
	29										
96											

Boring/Well No.: SB07/MW07D

Clayton GROUP SERVICES

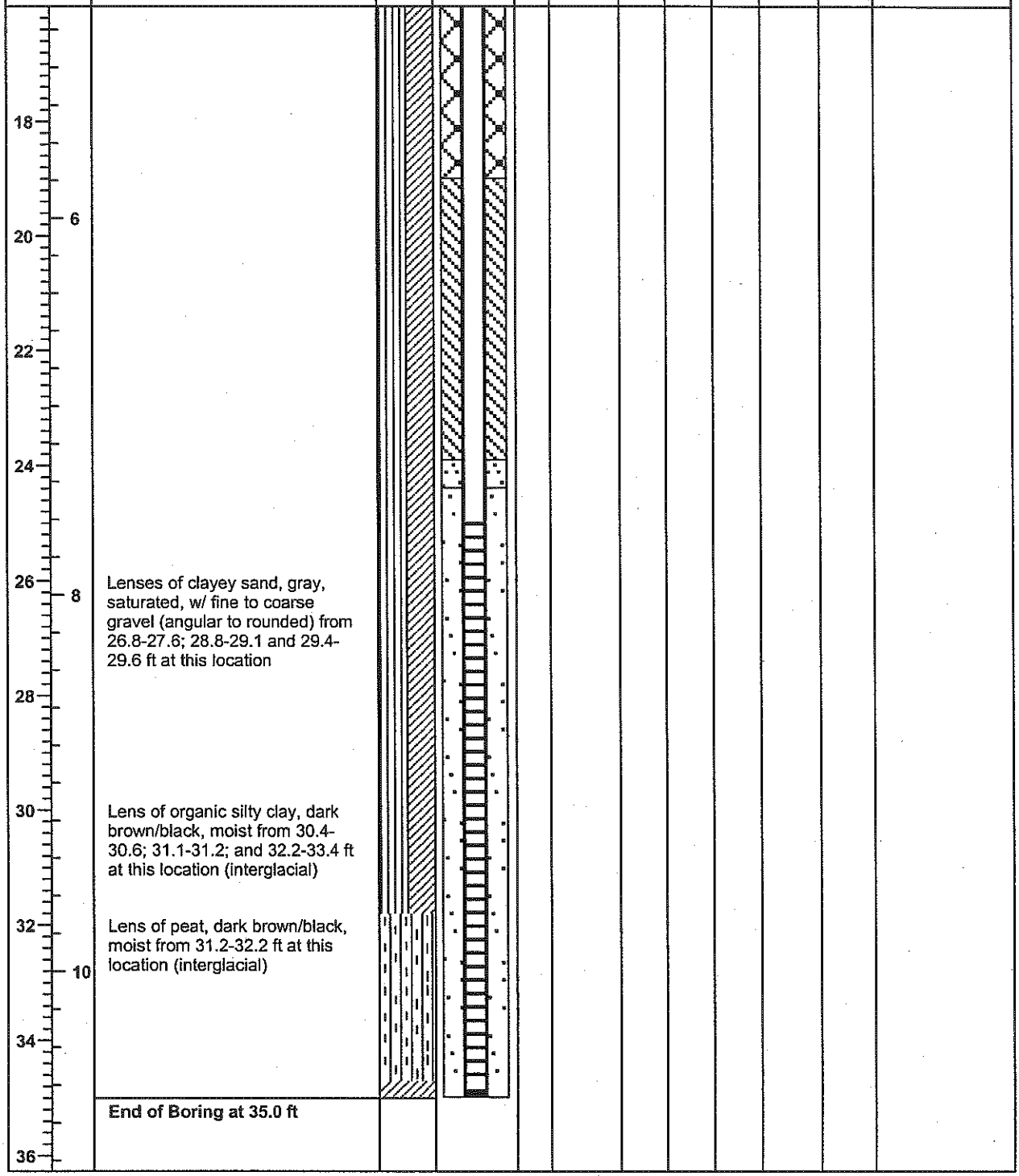
BORING NO: SB07	WELL NO: MW07S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL
BORING LOCATION: NW corner of WWT Pond 7		COORDINATES: 975431.102 E, 1142461.849 N	
DRILLING CO: Boart-Longyear	DRILLER: D. Duscher	LOGGED BY: K. Comire	
DRILLING EQUIP: Rotosonic Drill	SCREEN INTERVAL: 25.00-34.70 ft bgs	CHECKED BY: M. Nienkerk	
STATIC WATER LEVEL: 655.14 ft (12/09/00)	SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/7/00	
BOREHOLE DIA: 6"	STICKUP: 2.08 ft	START TIME (hours): 13:00	
TOP of CASING ELEVATION: 666.16 ft	G.S. ELEVATION: 664.08 ft	FINISH DATE: 11/7/00	
RISER DIA/MTL/LGTH: 2"/Stainless Steel/27.08 ft	DEV. METHODS: Submersible pump	FINISH TIME (hours): 16:52	

DEPTH (ft / m)	DESCRIPTION	GRAPHIC	WELL	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
-4 /											
-2 /											
0 /	Drilled to 35.0 ft See Log SB07/MW07D										Grass Surface
2 / 1											
4 /											
6 /											
8 /											
10 / 3											
12 /											
14 /											
16 /											

Boring/Well No.: SB07/MW07S

Clayton GROUP SERVICES

BORING NO: SB07	WELL NO: MW07S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium/ Tuscola, IL



Boring/Well No.: SB07/MW07S

Clayton GROUP SERVICES

BORING NO: SB08	WELL NO: MW08D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL
BORING LOCATION: SE corner of Co. Rd. 1075 N and 750 E		COORDINATES: 985161.937 E, 1144578.376 N	
DRILLING CO: Boart-Longyear	DRILLER: D. Duscher		LOGGED BY: K. Comire
DRILLING EQUIP: Rotosonic Drill	SCREEN INTERVAL: 83.10-85.30 ft bgs		CHECKED BY: M. Nienkerk
STATIC WATER LEVEL: 656.42 (12/09/00)	SCREEN MTL/SLOT: Stainless Steel/0.010"		START DATE: 11/18/00
BOREHOLE DIA: 6"	STICKUP: (-) 0.26 ft		START TIME (hours): 12:38
TOP of CASING ELEVATION: 683.65 ft	G.S. ELEVATION: 683.91 ft		FINISH DATE: 11/19/00
RISER DIA/MTL/LGTH: 2"/Stainless Steel/82.84 ft	DEV. METHODS: Submersible pump		FINISH TIME (hours): 11:27

DEPTH (ft / m)	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
-2											
0	**0-5.0' SILTY CLAY-CL** Dark brown, moist, w/ trace fine to coarse sand & roots (topsoil from 0-1.0 ft (till)										Grass Surface
2	Grades brown at 1.0 ft			1	0.7'/4'	RC	M	NA	0	NA	
4											Slip coupling at 3.5 ft to repair damage
6 (2 m)	**5.0-6.3' SAND-SP** Brown, saturated, fine, w/ medium to coarse sand (angular to rounded)			2	4'/5'	RC	M/S/M	NA	0	NA	
8	**6.3-48.3' SILTY CLAY-CL** Grayish brown, moist, some fine to coarse sand & gravel (angular to rounded) w/orange fine sand inclusions (1/8 to 1/4") (till)										
10	Grades gray at 9.0 ft			3	4.7'/5'	RC	M	NA	0	NA	
12	Trace organic silt at 12.5 ft										
14 (4 m)				4	4.8'/5'	RC	M	NA	0	NA	
16											
18											

Boring/Well No.: SB08/MW08D

Clayton GROUP SERVICES

BORING NO: SB08	WELL NO: MW08D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
20	6.3-48.3' SILTY CLAY-CL (Continued)										
22				5	4.5'/5'	RC	M	NA	0	NA	
7											
24											
26											
28				6	9.4'/10'	RC	M	NA	0	NA	
9											
30											
32											
34											
36											
11											
38											

Clayton GROUP SERVICES

BORING NO: SB08	WELL NO: MW08D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
40	**6.3-48.3' SILTY CLAY-CL** (Continued)			7	10'/10'	RC	M	NA	0	NA	
42											
13											
44											
46	Grades brownish gray with brown fine sand inclusions (1/8 to 1/4"), trace medium to coarse sand and fine gravel (angular to rounded) at 46.7 ft										
48	**48.3-51.0' SILT-ML** Gray, moist, w/ clay & orange brown fine sand, trace medium to coarse sand & gravel (till) Grades greenish gray with orange mottles, tr. clay, fine to coarse sand and gravel at 49.4ft (interglacial)			8	8.3'/10'	RC	M	NA	0	NA	
15											
50											
52	**51.0-54.0' CLAYEY SILT-CL/ML** Gray, moist, some fine to coarse sand and gravel (angular to rounded) (interglacial)										
54	**54.0-57.0' SILT-ML** Gray, w/ dark brown mottles, moist w/organic silt, some clay, trace fine to coarse sand & gravel (angular to subrounded) roots, peat (interglacial)										
17											
56											
58	**57.0-58.0' CLAYEY SILT-CL/ML** Gray, moist (interglacial)										

Clayton
GROUP SERVICES

BORING NO: SB08	WELL NO: MW08D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
60	**58.0-59.1' ORGANIC SILT-OL** Blackish gray, moist, trace peat & clay (interglacial)			9	9.9'/10'	RC	M	NA	0	NA	
62	**59.1-84.5' CLAYEY SILT-CL/ML** Gray, moist, some fine to coarse sand and fine gravel (angular to rounded) (till)										
64											
66				10	6'/6'	RC	M	NA	0	NA	
68											
70											
72				11	3.8'/4'	RC	M	NA	0	NA	
74											
76											
78	Lens of silt, gray, moist, trace clay from 77.6-78.5 ft										

19 21 23

Boring/Well No.: SB08/MW08D

Clayton GROUP SERVICES

BORING NO: SB08	WELL NO: MW08D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
80	**59.1-84.5' CLAYEY SILT-CL/ML** (Continued)			12	8'/10'	RC	M	NA	0	NA	
82 — 25											
84	**84.5-85.5' SAND-SW** Gray, saturated, with fine to coarse gravel (angular to rounded)										
86	**85.5-101.0' CLAYEY SILT-CL/ML** Gray, moist, some fine to coarse sand & fine gravel (angular to rounded) (till)			13	7'/7'	RC	M/S/M	NA	0	NA	Boring sloughed from 85.60 to 101.0 ft
88											
27											
90											
92	W/orange mottles from 92.9-93.6 ft										
	Lens of sand, brown, moist, fine from 95.5-95.6 ft										
94	Lens of silt, gray, moist, some clay from 95.6-95.8 ft										
29	Lens of sand, brownish gray, moist, with some medium to coarse sand (angular to rounded), trace silt, clay and fine gravel from 95.8-96.5 ft										
96				14	10'/10'	RC	M	NA	0	NA	
	Lens of silt & very fine sand, brown, moist from 96.5-96.6 ft										
	Grade brown at 96.6 ft										
98											

Boring/Well No.: SB08/MW08D

Clayton GROUP SERVICES

BORING NO: SB08	WELL NO: MW08D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
100	85.5-101.0' CLAYEY SILT-CL/ML (Continued)										
102	End of Boring at 101.0 ft										
104											
106											
108											
110											
112											
114											
116											
118											

31 33 35

Clayton GROUP SERVICES

BORING NO: SB08	WELL NO: MW08S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL
BORING LOCATION: SE corner of Co. Rd. 1075 N and 750 E			COORDINATES: 985161.733 E, 1144570.456 N
DRILLING CO: Boart-Longyear		DRILLER: D. Duscher	LOGGED BY: K. Comire
DRILLING EQUIP: Rotosonic Drill		SCREEN INTERVAL: 3.55-13.25 ft	CHECKED BY: M. Nienkerk
STATIC WATER LEVEL: 677.50 ft (12/09/00)		SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/19/00
BOREHOLE DIA: 6"		STICKUP: (-) 0.40 ft	START TIME (hours): 15:35
TOP of CASING ELEVATION: 683.83 ft		G.S. ELEVATION: 684.23 ft	FINISH DATE: 11/19/00
RISER DIA/MTL/LGTH: 2"/Stainless Steel/3.15 ft		DEV. METHODS: Bailer	FINISH TIME (hours): 16:24

DEPTH (ft / m)	DESCRIPTION	GRAPHIC	WELL	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
-4 / -2											
0	Drilled to 14.0 ft See Log SB08/MW08D										
2 / 4 / 1											Slip coupling at 3.2 ft to repair damage
6 / 8 / 10 / 3											
12 / 14	End of Boring at 14.0 ft										Boring sloughed from 13.55-14.0 ft
16											

Boring/Well No.: SB08/MW08S

Clayton GROUP SERVICES

BORING NO: SB09	WELL NO: MW09D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL
BORING LOCATION: South of plant along U.S. Route 36		COORDINATES: 981614.465 E, 1138103.621 N	
DRILLING CO: Boart-Longyear		DRILLER: D. Duscher	LOGGED BY: K. Comire
DRILLING EQUIP: Rotosonic Drill		SCREEN INTERVAL: 96.72-98.92 ft bgs	CHECKED BY: M. Nienkerk
STATIC WATER LEVEL: 658.16 ft (12/09/00)		SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/20/00
BOREHOLE DIA: 6"		STICKUP: 1.75 ft	START TIME (hours): 13:54
TOP of CASING ELEVATION: 696.14 ft		G.S. ELEVATION: 694.39 ft	FINISH DATE: 11/21/00
RISER DIA/MTL/LGTH: 2"/Stainless Steel/98.47 ft		DEV. METHODS: Submersible Pump	FINISH TIME (hours): 15:39

DEPTH (ft)	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
0	0-0.3' ROOTS **0.3-55.0' SILTY CLAY-CL** Dark brown, moist, with organic silt, trace fine to coarse sand and gravel (angular to rounded), roots (topsoil from 0.3-1.0 ft) (till)			1	1.3'/5'	RC	M	NA	0	NA	Grass Surface
4 (1 m)	Grades brown, with some orange mottles, moist, some fine to coarse sand and gravel (angular to rounded) at 1.0 ft										
10 (3 m)	Grades gray at 11.0 ft			2	6'/10'	RC	M	NA	0	NA	
14	Lens of silt, gray, moist from 14.4-14.6 ft										
16											

Boring/Well No.: SB09/MW09D

Clayton GROUP SERVICES

BORING NO: SB09	WELL NO: MW09D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
18	**0.3-55.0' SILTY CLAY-CL** (Continued)										
20 (6)				3	10'/10'	RC	M	NA	0	NA	
22											
24	with trace organic silt at 24.8 ft										
26 (8)											
28											
30				4	9.7'/10'	RC	M	NA	0	NA	
32 (10)											
34											
36											

Clayton GROUP SERVICES

BORING NO: SB09	WELL NO: MW09D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
38	**0.3-55.0' SILTY CLAY-CL** (Continued)										
12											
40				5	9.5'/10'	RC	M	NA	0	NA	
42											
44											
14											
46											
48											
50				6	9.8'/10'	RC	M	NA	0	NA	
52											
16	Lenses of silt, gray, saturated from 53.8-53.9 ft and 54.1-54.4 ft										
54	Lens of sand, brown, saturated, fine from 54.8-55.0 ft										
56											

Clayton GROUP SERVICES

BORING NO: SB09	WELL NO: MW09D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
58	**55.0-56.2' SILT-ML** Greenish gray, moist (interglacial)										
	56.2-65' CLAYEY SILT-CL/ML Gray, moist, with some fine to coarse sand and gravel (angular to rounded) trace organic silt (interglacial)										
60				7	10'/10'	RC	M	NA	0	NA	
62	19										
64	with organic silt, trace roots, from 64.4-65.0 ft										
66	**65-66.4' SILT-ML** Gray, moist, with dark brown organic silt inclusions, trace clay and fine to coarse sand (angular to rounded) (interglacial)										
	66.4-68.3' CLAYEY SILT-CL/ML Gray, moist, with some fine to coarse sand and gravel (angular to rounded) (till)										
68											
	21										
	68.3-71.8' SAND-ML Gray, moist, very fine, with silt, trace medium to coarse sand and gravel (angular to subrounded) (till)										
70				8	10'/10'	RC	M	NA	0	NA	
72	**71.8-72.7' SILT-ML** Gray, moist										
	72.7-95.5' CLAYEY SILT-CL/ML Gray, moist, some fine to coarse sand (angular to rounded) (till)										
74	Lens of silt, gray, moist from 74.0-74.1 ft										
	23										
76											

Clayton GROUP SERVICES

BORING NO: SB09	WELL NO: MW09D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
78	**72.7-95.5' CLAYEY SILT-CL/ML** (Continued)			9	4.5'/5'	RC	M	NA	0	NA	
80											
82 – 25				10	3'/3'	RC	M	NA	0	NA	
84											
86				11	7'/7'	RC	M	NA	0	NA	
88											
27											
90											
92				12	5'/5'	RC	M	NA	0	NA	
94											
29											
96											

Clayton GROUP SERVICES

BORING NO: SB09	WELL NO: MW09D	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
98	**95.5-98.3' SAND-SP** Grayish brown, saturated, fine, trace medium to coarse sand and fine gravel (subangular to rounded)			13	5.1'/6'	RC	M/S/M	NA	0	NA	
	98.3-99.5' SILT-ML Grayish brown, moist, some clay										
100	**99.5-101' CLAYEY SILT-CL/ML** Gray, moist, some fine to coarse sand (angular to rounded) (till)										Boring sloughed from 99.22 to 101.0 ft
31											
102	**End of Boring at 101.0 ft**										
104											
106											
108											
33											
110											
112											
114											
35											
116											

Boring/Well No.: SB09/MW09D

Clayton GROUP SERVICES

BORING NO: SB09	WELL NO: MW09S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL
BORING LOCATION: South of plant along U.S. Route 36			COORDINATES: 981609.115 E, 1138103.034 N
DRILLING CO: Boart-Longyear		DRILLER: D. Duscher	LOGGED BY: K. Comire
DRILLING EQUIP: Rotosonic Drill		SCREEN INTERVAL: 5.24-14.94 ft bgs	CHECKED BY: M. Nienkerk
STATIC WATER LEVEL: 691.21 ft (12/09/00)		SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 11/21/00
BOREHOLE DIA: 6"		STICKUP: 1.70 ft	START TIME (hours): 16:28
TOP of CASING ELEVATION: 696.04 ft		G.S. ELEVATION: 694.34 ft	FINISH DATE: 11/22/00
RISER DIA/MTL/LGTH: 2"/Stainless Steel/6.94 ft		DEV. METHODS: Bailer	FINISH TIME (hours): 8:40

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
ft m -4 -2 0 2 4 6 8 10 12 14 16 1 3	Drilled to 17.0 ft See Log SB09/MW09D Lens of sand, brown, saturated, fine from 10.6-10.9 ft at this location										Boring sloughed from 15.24-17.0 ft

Boring/Well No.: SB09/MW09S

Clayton GROUP SERVICES

BORING NO: SB09	WELL NO: MW09S	PROJECT NO: 15-00116.01	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES: NUMBER	SAMPLES: RECOVERY	SAMPLES: METHOD	SAMPLES: MOISTURE	SAMPLES: BLOW CNT (6")	PID: SCAN	PID: HEADSPACE	REMARKS
18	End of Boring at 17.0 ft										
20 – 6											
22											
24											
26 – 8											
28											
30											
32 – 10											
34											
36											

Boring/Well No.: SB09/MW09S

Clayton GROUP SERVICES

BORING NO: SB10	WELL NO: MW10	PROJECT NO: 15-00116	PROJECT NAME: Millennium/ Tuscola, IL
BORING LOCATION: ~400 ft SW of MW03S			COORDINATES: 977306.6 E, 1140795.337 N
DRILLING CO: Boart-Longyear		DRILLER: D. Duscher	LOGGED BY: M. Leddy
DRILLING EQUIP: Rotosonic Drill		SCREEN INTERVAL: 5.0 - 14.7 ft bgs	CHECKED BY: M. Nienkerk
STATIC WATER LEVEL: 666.18 ft msl (7-23-01)		SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 7/10/01
BOREHOLE DIA: 6"		STICKUP: 2.54 ft	START TIME (hours): 1245
TOP of CASING ELEVATION: 674.84 ft msl		G.S. ELEVATION: 672.30 ft msl	FINISH DATE: 7/10/01
RISER DIA/MTL/LGTH: 2"/Stainless Steel/7.54 ft		DEV. METHODS: Submersible pump	FINISH TIME (hours): 1330

DEPTH (ft / m)	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	RECOVERY	METHOD	MOISTURE	BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
0											Grass Surface
2	**0-2.6' TOPSOIL/FILL** Silty clay, light brown, moist, trace fine to coarse sand			1	5/5	RC	M	NA	0.0	NA	
4 / 1	**2.6-6.6' SILTY CLAY-CL** Light brown, dry, with orange mottles, slight odor Grades to dark brown at 4 to 5 ft										
6				2	3.8/5	RC	W/M	NA	0.0	NA	
8	**6.6-8.2' SILTY SAND-SM** Light brown, wet, medium, with clay, some fine gravel Brown silt at 8 to 8.2 ft										
10 / 3	**8.2-10' SILTY CLAY-CL** Light brown, moist to dry, with gray clay inclusions										
12	**10-11' SILTY SAND-SM** Light brown, wet, medium, with clay, some fine gravel **11-15' SILTY CLAY-CL** Gray, moist, trace fine to medium gravel			3	4.7/5	RC	W/M	NA	0.0	NA	
14	Grades to some gravel at 13ft										
16	**End of Boring at 15ft**										

Boring/Well No.: SB10/MW10

Clayton GROUP SERVICES

BORING NO: SB11	WELL NO: MW11	PROJECT NO: 15-00116	PROJECT NAME: Millennium / Tuscola, IL
BORING LOCATION: East of the Area 1 and 2 Landfills			COORDINATES: 982520.0 E, 1143360.942 N
DRILLING CO: Boart-Longyear		DRILLER: D. Duscher	LOGGED BY: M. Leddy
DRILLING EQUIP: Rotosonic Drill		SCREEN INTERVAL: 99.0 - 101.7 ft bgs	CHECKED BY: M. Nienkerk
STATIC WATER LEVEL: 658.74 ft msl (7-23-01)		SCREEN MTL/SLOT: Stainless Steel/0.010"	START DATE: 7/10/01
BOREHOLE DIA: 6"		STICKUP: 2.70 ft	START TIME (hours): 1500
TOP of CASING ELEVATION: 698.28 ft msl		G.S. ELEVATION: 695.58 ft msl	FINISH DATE: 7/11/01
RISER DIA/MTL/LGTH: 2"/Stainless Steel/101.7 ft		DEV. METHODS: Submersible pump	FINISH TIME (hours): 0930

DEPTH (ft / m)	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	RECOVERY	METHOD	MOISTURE	BLOW CNT (6")	PID SCAN	HEADSPACE	REMARKS
-4 / -2											
0	**0-1.2' TOPSOIL** Dark brown, moist, w/ trace fine to coarse sand & roots										Grass Surface
2 / 1	**1.2-54.1' SILTY CLAY-CL** Light brown, moist, some fine to medium sand, stiff (till)			1	2.2/5	RC	M	NA	0	NA	
4											
6				2	0/5	RC	M	NA	NA	NA	No recovery due to protection of utilities
8											
10 / 3	Clay with silt from 11 to 12 ft										
12	Seam of dark brown, moist, silty gravel at 12 to 12.4 ft			3	4/5	RC	M	NA	NA	NA	
14	Grades gray at 14.6 ft										
16											

Boring/Well No.: SB11/MW11

Clayton GROUP SERVICES

BORING NO: SB11	WELL NO: MW11	PROJECT NO: 15-00116	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
18	1.2-54.1' SILTY CLAY-CL (Continued)			4	5/5	RC	M	NA	NA	0	
20 – 6											
22				5	5.7/5	RC	M	NA	NA	0	
24											Grain-size, total organic carbon, pH, and moisture sample at 24ft
26 – 8				6	5.7/5	RC	M	NA	NA	0	
28											
30				7	4.8/5	RC	M	NA	NA	0	
32 – 10											
34	Trace gravel at 34.0 ft										
36											

Clayton GROUP SERVICES

BORING NO: SB11	WELL NO: MW11	PROJECT NO: 15-00116	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
38	1.2-54.1' SILTY CLAY-CL (Continued)			8	5/5	RC	M	NA	NA	0	
40 – 12											
42				9	5/5	RC	M	NA	NA	0	
44											
46 – 14				10	9/10	RC	M	NA	NA	0	
48											
50											
52 – 16											
54	54.1-56.7' SAND-SP Gray, wet, poorly sorted, some gravel										
56											

Clayton GROUP SERVICES

BORING NO: SB11	WELL NO: MW11	PROJECT NO: 15-00116	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
58											
60	**56.7-63.3 ORGANIC SILT-OL** Dark brown, moist, trace peat & clay (interglacial)			11	7.7/10	RC	M	NA	NA	0	
62											
19											
64	**63.3-66' CLAYEY SILT-CL/ML** Dark brown, moist, trace fine gravel (angular to rounded) (till) 1/2" lens of green silt at 65ft Grades to gray at 65.3 ft										
66	**66-69.1' SAND-SP** Gray, wet, poorly sorted, some gravel										
68											
21											
70	**69.1-72.5' CLAYEY SILT-CL/ML** Gray, moist, trace gravel			12	9/10	RC	M	NA	NA	0	Grain-size, non volatile organic carbon, pH, and moisture sample at 69.5ft
72											
74	**72.5-75' ORGANIC SILT-OL** Dark brown, moist, organic matter (interglacial)										
23											
76											

Clayton GROUP SERVICES

BORING NO: SB11	WELL NO: MW11	PROJECT NO: 15-00116	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
78	**75-77.7' SAND-SP** Gray, wet, poorly sorted, with silt, trace gravel										
	77.7-78.6' SILTY SAND-SM Gray, wet, poorly sorted, trace gravel										
80	**78.6-98' CLAYEY SILT-CL/ML** Gray, moist, some fine to coarse sand and gravel, till			13	10.9/10	RC	M	NA	NA	0	
82	25										
84											
86				14	5/5	RC	M	NA	NA	0	Grain-size, total organic carbon, pH, moisture, and bulk density sample at 85ft
88	27										
90	1" silty sand lens at 91ft										
92				15	5.4/5	RC	M	NA	NA	0	
94											
	29										
96											

Clayton GROUP SERVICES

BORING NO: SB11	WELL NO: MW11	PROJECT NO: 15-00116	PROJECT NAME: Millennium / Tuscola, IL

DEPTH	DESCRIPTION	GRAPHIC	WELL	SAMPLES NUMBER	SAMPLES RECOVERY	SAMPLES METHOD	SAMPLES MOISTURE	SAMPLES BLOW CNT (6")	PID SCAN	PID HEADSPACE	REMARKS
98	1" silt lens at 97.5 ft			16	3.7/5	RC	M	NA	NA	0	
100	**98-101.2' SAND-SW** Gray, saturated, with fine to coarse gravel (angular to rounded)										
102 (31)	**101.2-103.8' SILT-ML** Gray, wet			17	7.5/10	RC	M	NA	NA	0	Grain-size, non volatile organic carbon, pH, and moisture sample at 101ft
104	**103.8-105' CLAYEY SILT-CL/ML** Gray, moist, some fine to coarse sand & fine gravel (angular to rounded) (till)										
106	**End of Boring at 105 ft**										
108 (33)											
110											
112											
114 (35)											
116											

Boring/Well No.: SB11/MW11

APPENDIX C-2

WELL COMPLETION DIAGRAMS

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW01D

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB01

STATE PLANE COORDINATE: X 978260.807 E Y 1143144.488 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/04/00 DATE FINISHED: 11/04/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 02/27/2001

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite grout

INSTALLATION METHOD: Tremie pipe

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, CHIPS (CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

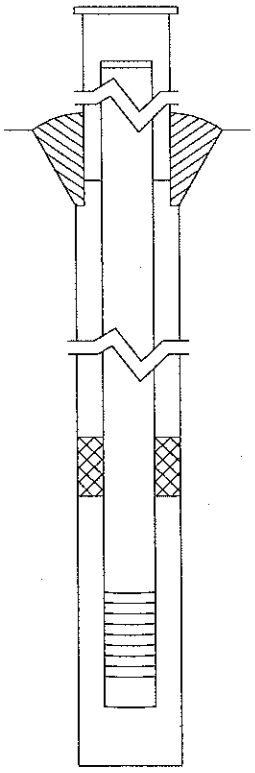
TYPE OF SAND PACK: Quartz

GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable (IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



	ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
TOP OF PROTECTIVE CASING	----	----	
TOP OF RISER PIPE	681.21	-2.03	
GROUND SURFACE	679.18	0	
TOP OF ANNULAR SEALANT	676.48	2.70	
STATIC WATER LEVEL (AFTER COMPLETION)	656.39	22.79	
TOP OF SEAL	611.18	68.00	
TOP OF SANDPACK	607.18	72.00	
TOP OF SCREEN	599.71	79.47	
BOTTOM OF SCREEN	595.01	84.17	
BOTTOM OF WELL	594.71	84.47	
BOTTOM OF BOREHOLE	588.18	91.00	

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER:)	Steel
RISER PIPE ABOVE W.T.	(SS304), SS316, PTFE, PVC OR OTHER:	
RISER PIPE BELOW W.T.	(SS304), SS316, PTFE, PVC OR OTHER:	
SCREEN	(SS304), SS316, PTFE, PVC OR OTHER:	

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	81.5
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	4.7
TOTAL LENGTH OF CASING (ft)	86.5
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW01S

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB01

STATE PLANE COORDINATE: X 978255.170 E Y 1143144.279 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/04/00 DATE FINISHED: 11/04/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 02/27/2001

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite grout

INSTALLATION METHOD: Tremie pipe

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)
(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

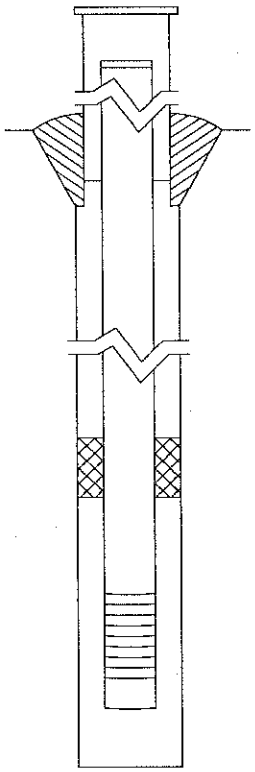
TYPE OF SAND PACK: Quartz

GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable
(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



	ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
TOP OF PROTECTIVE CASING	----	----	
TOP OF RISER PIPE	681.24	-1.98	
GROUND SURFACE	679.26	0	
TOP OF ANNULAR SEALANT	676.43	2.83	
STATIC WATER LEVEL (AFTER COMPLETION)	657.07	22.19	
TOP OF SEAL	637.84	41.42	
TOP OF SANDPACK	632.84	46.42	
TOP OF SCREEN	630.12	49.14	
BOTTOM OF SCREEN	625.42	53.84	
BOTTOM OF WELL	625.12	54.14	
BOTTOM OF BOREHOLE	625.06	54.20	

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER: Steel)
RISER PIPE ABOVE W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304), SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	51.12
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	4.7
TOTAL LENGTH OF CASING (ft)	56.12
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW02D

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB02

STATE PLANE COORDINATE: X 978299.197 E Y 1141690.769 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/01/00 DATE FINISHED: 11/01/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 2/27/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite/grout

INSTALLATION METHOD: Tremie pipe

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)

(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

TYPE OF SAND PACK: Quartz

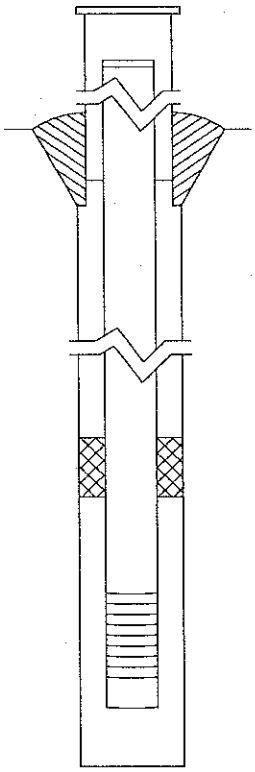
GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable

(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
-------	-------	TOP OF PROTECTIVE CASING
676.44	-2.00	TOP OF RISER PIPE
674.44	0	GROUND SURFACE
671.94	2.50	TOP OF ANNULAR SEALANT
657.22	17.22	STATIC WATER LEVEL (AFTER COMPLETION)
613.94	60.50	TOP OF SEAL
608.64	65.80	TOP OF SANDPACK
607.07	67.37	TOP OF SCREEN
602.37	72.07	BOTTOM OF SCREEN
602.07	72.37	BOTTOM OF WELL
602.07	75.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER:) Steel
RISER PIPE ABOVE W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304), SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	69.37
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	4.7
TOTAL LENGTH OF CASING (ft)	74.37
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW02S

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB02

STATE PLANE COORDINATE: X 978306.947 E Y 1141684.690 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/03/00 DATE FINISHED: 11/03/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 02/27/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Not Applicable

INSTALLATION METHOD: Not Applicable

SETTING TIME: Not Applicable

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY (CHIPS) (CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

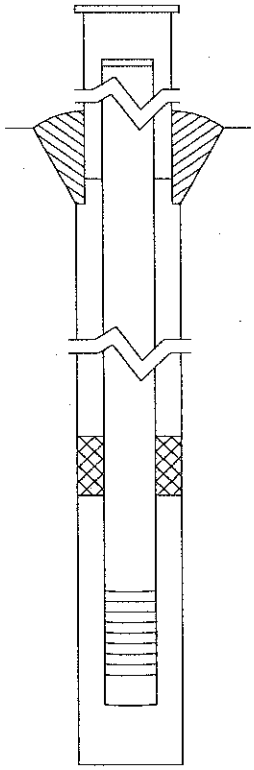
TYPE OF SAND PACK: Quartz

GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable (IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



	ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
TOP OF PROTECTIVE CASING	---	---	
TOP OF RISER PIPE	676.50	-2.00	
GROUND SURFACE	674.50	0	
TOP OF ANNULAR SEALANT	NA	NA	
STATIC WATER LEVEL (AFTER COMPLETION)	673.40	1.10	
TOP OF SEAL	670.50	4.00	
TOP OF SANDPACK	665.80	8.70	
TOP OF SCREEN	664.43	10.07	
BOTTOM OF SCREEN	654.73	19.77	
BOTTOM OF WELL	654.43	20.07	
BOTTOM OF BOREHOLE	654.00	20.50	

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER) Steel
RISER PIPE ABOVE W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304), SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	12.07
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	9.7
TOTAL LENGTH OF CASING (ft)	22.07
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW03D

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB03

STATE PLANE COORDINATE: X 977491.123 E Y 1140927.766 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/15/00 DATE FINISHED: 11/15/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 02/27/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite grout

INSTALLATION METHOD: Tremie pipe

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)
(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

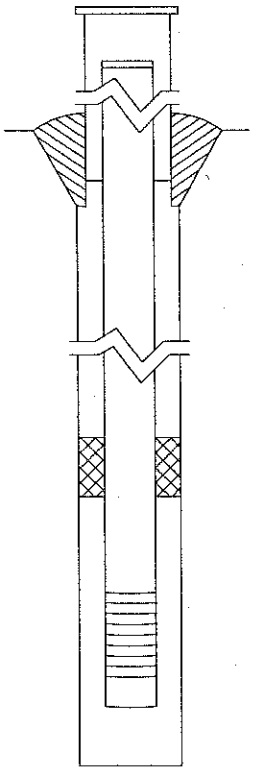
TYPE OF SAND PACK: Quartz

GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable
(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
-------	-------	TOP OF PROTECTIVE CASING
675.63	-2.32	TOP OF RISER PIPE
673.31	0	GROUND SURFACE
669.41	3.90	TOP OF ANNULAR SEALANT
656.54	16.77	STATIC WATER LEVEL (AFTER COMPLETION)
608.31	65.00	TOP OF SEAL
602.21	71.10	TOP OF SANDPACK
599.41	73.90	TOP OF SCREEN
594.71	78.60	BOTTOM OF SCREEN
594.41	78.90	BOTTOM OF WELL
587.81	85.50	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER:) Steel
RISER PIPE ABOVE W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304), SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	76.22
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	4.7
TOTAL LENGTH OF CASING (ft)	81.22
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW03S

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB03

STATE PLANE COORDINATE: X 977487.159 E Y 1140923.546 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/16/00 DATE FINISHED: 11/16/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 02/27/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Not Applicable

INSTALLATION METHOD: Not Applicable

SETTING TIME: Not Applicable

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)
(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

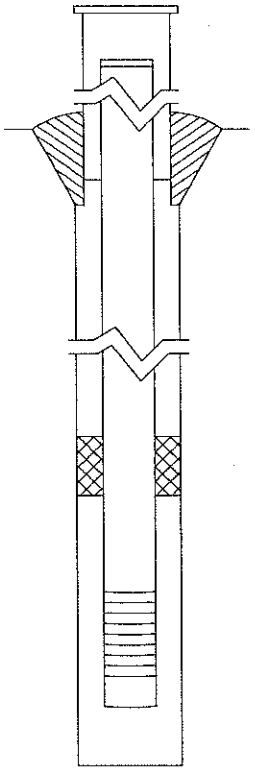
TYPE OF SAND PACK: Quartz

GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable
(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



	ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
TOP OF PROTECTIVE CASING	---	---	
TOP OF RISER PIPE	675.54	-2.13	
GROUND SURFACE	673.41	0	
TOP OF ANNULAR SEALANT	NA	NA	
STATIC WATER LEVEL (AFTER COMPLETION)	669.37	4.04	
TOP OF SEAL	670.41	3.00	
TOP OF SANDPACK	668.82	4.59	
TOP OF SCREEN	668.82	4.59	
BOTTOM OF SCREEN	659.12	14.29	
BOTTOM OF WELL	658.82	14.59	
BOTTOM OF BOREHOLE	658.41	15.00	

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER) Steel
RISER PIPE ABOVE W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304) SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	6.72
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	9.7
TOTAL LENGTH OF CASING (ft)	16.72
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW04D

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB04

STATE PLANE COORDINATE: X 977244.444 E Y 1141453.441 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/08/00 DATE FINISHED: 11/09/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 02/27/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite grout

INSTALLATION METHOD: Tremie pipe

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)
(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

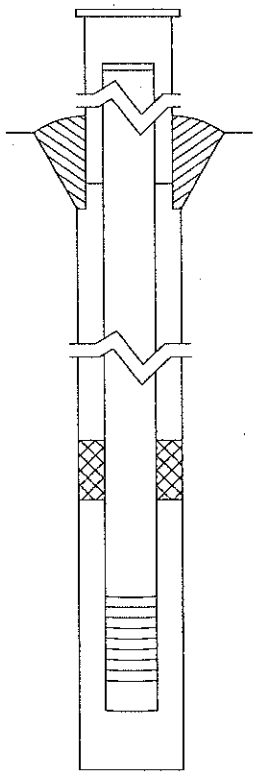
TYPE OF SAND PACK: Quartz

GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable
(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



	ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
TOP OF PROTECTIVE CASING	----	----	
TOP OF RISER PIPE	681.29	-2.04	
GROUND SURFACE	679.25	0	
TOP OF ANNULAR SEALANT	674.00	5.25	
STATIC WATER LEVEL (AFTER COMPLETION)	656.03	23.22	
TOP OF SEAL	605.75	73.50	
TOP OF SANDPACK	600.75	78.50	
TOP OF SCREEN	580.45	98.80	
BOTTOM OF SCREEN	575.75	103.50	
BOTTOM OF WELL	575.45	103.80	
BOTTOM OF BOREHOLE	575.45	103.80	

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER: Steel)
RISER PIPE ABOVE W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304), SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	100.84
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	4.7
TOTAL LENGTH OF CASING (ft)	105.84
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW04S

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB04

STATE PLANE COORDINATE: X 977251.253 E Y 1141452.904 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

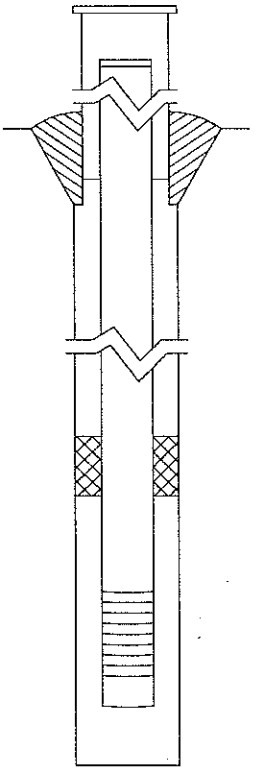
CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/18/00 DATE FINISHED: 11/18/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 02/27/01

ANNULAR SPACE DETAILS



TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Not Applicable

INSTALLATION METHOD: Not Applicable

SETTING TIME: Not Applicable

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)

(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

TYPE OF SAND PACK: Quartz

GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable

(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable

	ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
TOP OF PROTECTIVE CASING	---	---	
TOP OF RISER PIPE	681.06	-1.93	
GROUND SURFACE	679.13	0	
TOP OF ANNULAR SEALANT	NA	NA	
STATIC WATER LEVEL (AFTER COMPLETION)	668.06	11.07	
TOP OF SEAL	676.13	3.00	
TOP OF SANDPACK	674.21	4.92	
TOP OF SCREEN	674.21	4.92	
BOTTOM OF SCREEN	664.51	14.62	
BOTTOM OF WELL	664.21	14.92	
BOTTOM OF BOREHOLE	664.13	15.00	

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER) Steel
RISER PIPE ABOVE W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304), SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	6.85
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	9.7
TOTAL LENGTH OF CASING (ft)	16.85
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW05D

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB05

STATE PLANE COORDINATE: X 975781.687 E Y 1141559.080 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/16/00 DATE FINISHED: 11/17/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 02/27/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite grout

INSTALLATION METHOD: Tremie pipe

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)
(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

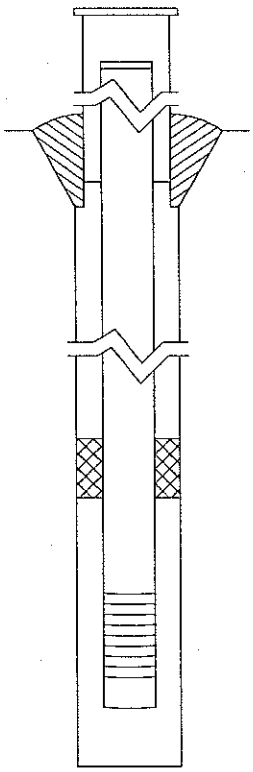
TYPE OF SAND PACK: Quartz

GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable
(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



	ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
TOP OF PROTECTIVE CASING	----	----	
TOP OF RISER PIPE	674.48	-2.15	
GROUND SURFACE	672.33	0	
TOP OF ANNULAR SEALANT	667.73	4.60	
STATIC WATER LEVEL (AFTER COMPLETION)	655.94	16.39	
TOP OF SEAL	605.63	66.70	
TOP OF SANDPACK	600.63	71.70	
TOP OF SCREEN	591.83	80.50	
BOTTOM OF SCREEN	589.63	82.70	
BOTTOM OF WELL	589.33	83.00	
BOTTOM OF BOREHOLE	586.33	86.00	

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER) Steel
RISER PIPE ABOVE W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304), SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	82.65
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	2.2
TOTAL LENGTH OF CASING (ft)	85.15
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW05S

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB05

STATE PLANE COORDINATE: X 975780.923 E Y 1141564.346 (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/17/00 DATE FINISHED: 11/17/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 02/28/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Not Applicable

INSTALLATION METHOD: Not Applicable

SETTING TIME: Not Applicable

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)
(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

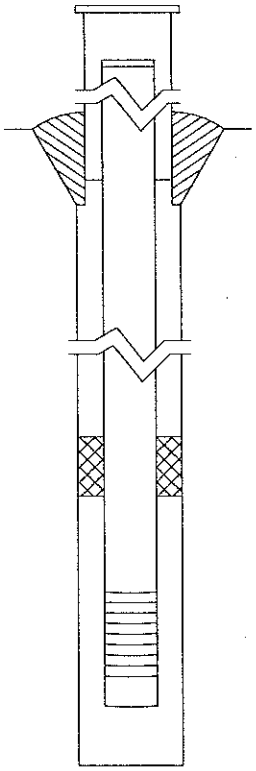
TYPE OF SAND PACK: Quartz

GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable
(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
-----	-----	TOP OF PROTECTIVE CASING
674.47	-2.21	TOP OF RISER PIPE
672.26	0	GROUND SURFACE
NA	NA	TOP OF ANNULAR SEALANT
663.57	8.69	STATIC WATER LEVEL (AFTER COMPLETION)
669.26	3.00	TOP OF SEAL
658.76	13.50	TOP OF SANDPACK
657.90	14.36	TOP OF SCREEN
648.20	24.06	BOTTOM OF SCREEN
647.90	24.36	BOTTOM OF WELL
647.26	25.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER) Steel
RISER PIPE ABOVE W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304), SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	16.57
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	9.7
TOTAL LENGTH OF CASING (ft)	26.57
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW06D

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB06

STATE PLANE COORDINATE: X 975477.039 E Y 1142127.639 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/05/00 DATE FINISHED: 11/05/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 02/28/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite grout

INSTALLATION METHOD: Tremie pipe

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)
(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~15 minutes

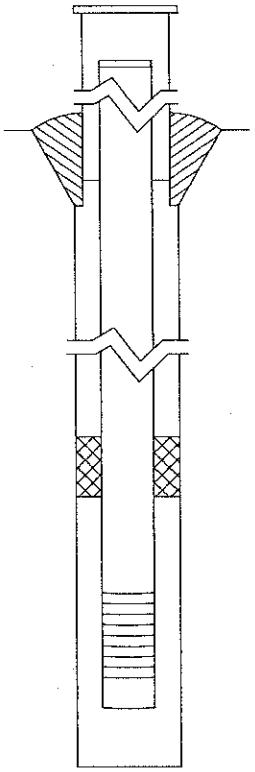
TYPE OF SAND PACK: Quartz

GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable
(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
-----	-----	TOP OF PROTECTIVE CASING
664.20	-1.70	TOP OF RISER PIPE
662.50	0	GROUND SURFACE
659.70	2.80	TOP OF ANNULAR SEALANT
655.83	6.67	STATIC WATER LEVEL (AFTER COMPLETION)
606.50	56.00	TOP OF SEAL
601.50	61.00	TOP OF SANDPACK
595.90	66.60	TOP OF SCREEN
591.20	71.30	BOTTOM OF SCREEN
590.90	71.60	BOTTOM OF WELL
587.50	75.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER) Steel
RISER PIPE ABOVE W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304) SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	68.3
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	4.7
TOTAL LENGTH OF CASING (ft)	73.3
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW06S

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB06

STATE PLANE COORDINATE: X 975474.709 E Y 1142133.447 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/05/00 DATE FINISHED: 11/06/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 02/28/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite grout

INSTALLATION METHOD: Tremie pipe

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)
(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

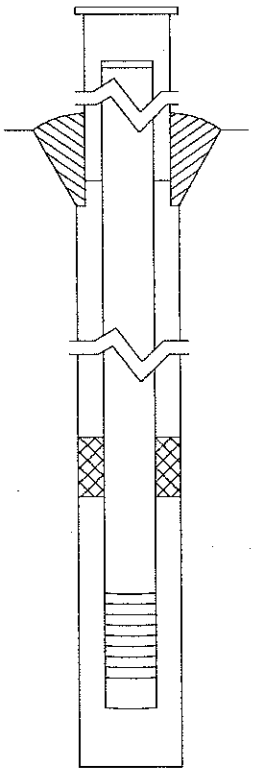
TYPE OF SAND PACK: Quartz

GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable
(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
-----	-----	TOP OF PROTECTIVE CASING
664.46	-2.04	TOP OF RISER PIPE
662.42	0	GROUND SURFACE
659.22	3.20	TOP OF ANNULAR SEALANT
655.43	6.99	STATIC WATER LEVEL (AFTER COMPLETION)
638.92	23.50	TOP OF SEAL
633.92	28.50	TOP OF SANDPACK
632.42	30.00	TOP OF SCREEN
622.72	39.70	BOTTOM OF SCREEN
622.42	40.00	BOTTOM OF WELL
622.42	40.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS
(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER) Steel
RISER PIPE ABOVE W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304), SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	32.04
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	9.7
TOTAL LENGTH OF CASING (ft)	42.04
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW07D

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, IL BOREHOLE #: SB07

STATE PLANE COORDINATE: X 975434.138 E Y 1142472.021 N LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/06/00 DATE FINISHED: 11/07/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 02/28/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite grout

INSTALLATION METHOD: Tremie pipe

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)

(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

TYPE OF SAND PACK: Quartz

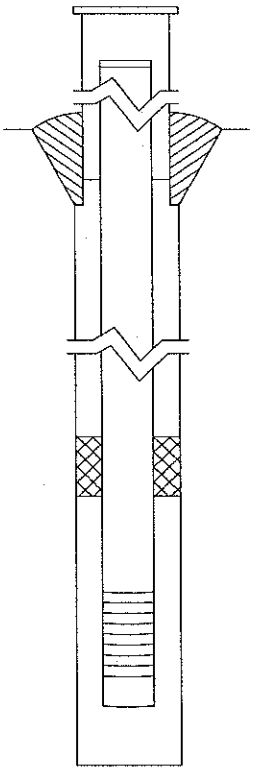
GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable

(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
---	---	TOP OF PROTECTIVE CASING
666.13	-2.11	TOP OF RISER PIPE
664.02	0	GROUND SURFACE
661.52	2.50	TOP OF ANNULAR SEALANT
655.86	8.16	STATIC WATER LEVEL (AFTER COMPLETION)
607.02	57.00	TOP OF SEAL
601.52	62.50	TOP OF SANDPACK
595.48	68.54	TOP OF SCREEN
590.78	73.24	BOTTOM OF SCREEN
590.48	73.54	BOTTOM OF WELL
585.02	79.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER) Steel
RISER PIPE ABOVE W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304) SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	70.65
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	4.7
TOTAL LENGTH OF CASING (ft)	75.65
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW07S

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB07

STATE PLANE COORDINATE: X 975431.102 E Y 1142461.849 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/07/00 DATE FINISHED: 11/07/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 02/28/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite grout

INSTALLATION METHOD: Tremie pipe

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)
(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

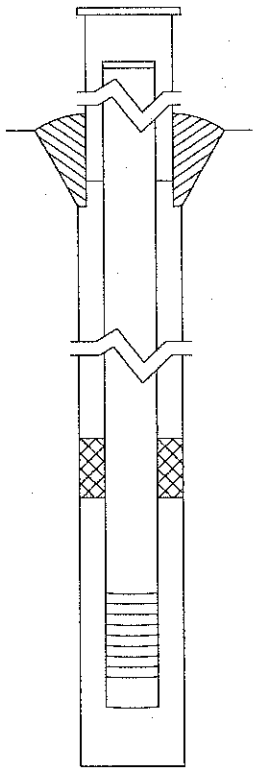
TYPE OF SAND PACK: Quartz

GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable
(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



	ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
TOP OF PROTECTIVE CASING	-----	-----	
TOP OF RISER PIPE	666.16	-2.08	
GROUND SURFACE	664.08	0	
TOP OF ANNULAR SEALANT	662.08	2.00	
STATIC WATER LEVEL (AFTER COMPLETION)	655.14	8.94	
TOP OF SEAL	645.08	19.00	
TOP OF SANDPACK	640.18	23.90	
TOP OF SCREEN	639.08	25.00	
BOTTOM OF SCREEN	629.38	34.70	
BOTTOM OF WELL	629.08	35.00	
BOTTOM OF BOREHOLE	629.08	35.00	

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER:) Steel
RISER PIPE ABOVE W.T.	(SS304,) SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304,) SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304,) SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	27.08
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	9.7
TOTAL LENGTH OF CASING (ft)	37.08
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005078 126 COUNTY: Douglas WELL #: MW08S

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB08

STATE PLANE COORDINATE: X 985161.733 E Y 1144570.456 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/19/00 DATE FINISHED: 11/19/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 05/02/01

ANNUAL SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Not applicable

INSTALLATION METHOD: Not applicable

SETTING TIME: Not applicable

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)

(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

TYPE OF SAND PACK: Quartz

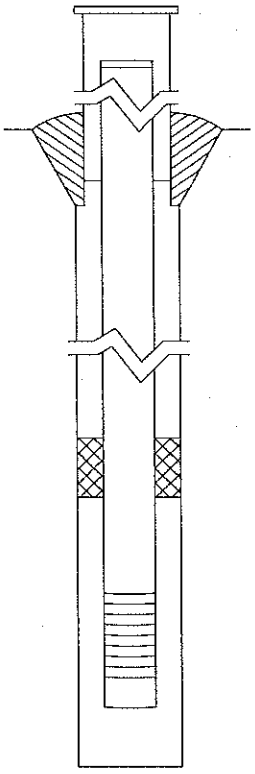
GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable

(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



	ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
TOP OF PROTECTIVE CASING	---	---	
TOP OF RISER PIPE	683.83	0.40	
GROUND SURFACE	684.23	0.00	
TOP OF ANNULAR SEALANT	NA	NA	
STATIC WATER LEVEL (AFTER COMPLETION)	677.50	6.33	
TOP OF SEAL	681.73	2.50	
TOP OF SANDPACK	680.73	3.40	
TOP OF SCREEN	680.68	3.55	
BOTTOM OF SCREEN	670.98	13.25	
BOTTOM OF WELL	670.68	13.55	
BOTTOM OF BOREHOLE	670.23	14.00	

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER: Cast Iron)
RISER PIPE ABOVE W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304) SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	1
RISER PIPE LENGTH (ft)	3.15
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	9.7
TOTAL LENGTH OF CASING (ft)	13.15
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW08D

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB08

STATE PLANE COORDINATE: X 985161.937 E Y 1144578.376 N LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/18/00 DATE FINISHED: 11/19/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 05/02/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite grout

INSTALLATION METHOD: Tremie pipe

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)

(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

TYPE OF SAND PACK: Quartz

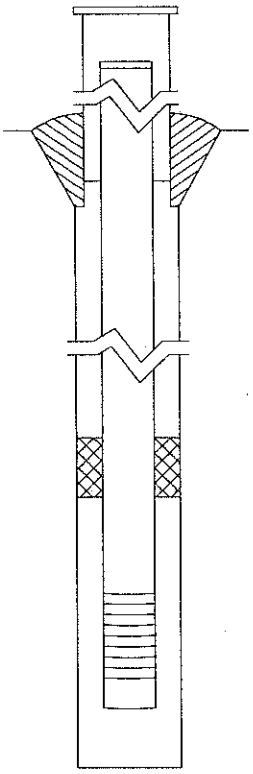
GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable

(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
----	----	TOP OF PROTECTIVE CASING
683.65	0.26	TOP OF RISER PIPE
683.91	0.00	GROUND SURFACE
680.91	3.00	TOP OF ANNULAR SEALANT
656.42	27.23	STATIC WATER LEVEL (AFTER COMPLETION)
606.91	77.00	TOP OF SEAL
601.41	82.50	TOP OF SANDPACK
600.81	83.10	TOP OF SCREEN
598.61	85.30	BOTTOM OF SCREEN
598.31	85.60	BOTTOM OF WELL
582.91	101.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER: Cast Iron)
RISER PIPE ABOVE W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304) SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	1
RISER PIPE LENGTH (ft)	82.84
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	2.2
TOTAL LENGTH OF CASING (ft)	85.34
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / IL.D 005 078 126 COUNTY: Douglas WELL #: MW09S

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB09

STATE PLANE COORDINATE: X 981609.115 E Y 1138103.034 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/22/00 DATE FINISHED: 11/22/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 02/28/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Not applicable

INSTALLATION METHOD: Not applicable

SETTING TIME: Not applicable

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)

(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~15 minutes

TYPE OF SAND PACK: Quartz

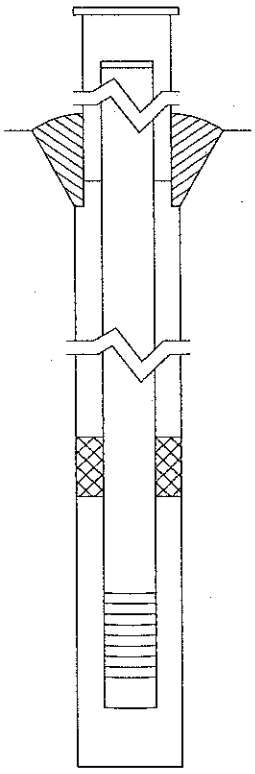
GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable

(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
---	---	TOP OF PROTECTIVE CASING
696.04	-1.70	TOP OF RISER PIPE
694.34	0	GROUND SURFACE
NA	NA	TOP OF ANNULAR SEALANT
691.21	4.83	STATIC WATER LEVEL (AFTER COMPLETION)
691.34	3.00	TOP OF SEAL
690.34	4.00	TOP OF SANDPACK
689.10	5.24	TOP OF SCREEN
679.40	14.94	BOTTOM OF SCREEN
679.10	15.24	BOTTOM OF WELL
677.34	17.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER: Steel)
RISER PIPE ABOVE W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304) SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	6.94
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	9.7
TOTAL LENGTH OF CASING (ft)	16.94
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW09D

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB09

STATE PLANE COORDINATE: X 981614.465 E Y 1138103.621 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: K. Comire

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: K. Comire DATE STARTED: 11/20/00 DATE FINISHED: 11/21/00

REPORT FORM COMPLETED BY: M. Leddy DATE: 02/28/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite grout

INSTALLATION METHOD: Tremie pipe

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)
(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

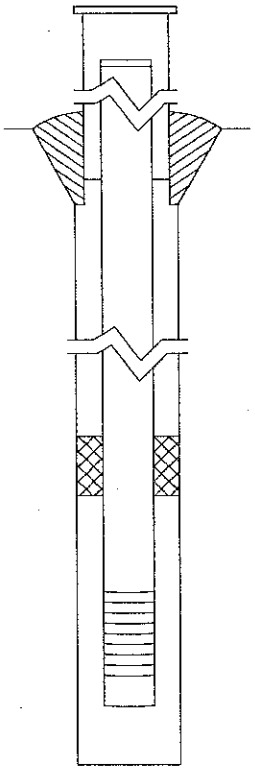
TYPE OF SAND PACK: Quartz

GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable
(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
----	----	TOP OF PROTECTIVE CASING
696.14	-1.75	TOP OF RISER PIPE
694.39	0	GROUND SURFACE
691.39	3.00	TOP OF ANNULAR SEALANT
658.16	37.98	STATIC WATER LEVEL (AFTER COMPLETION)
606.39	88.00	TOP OF SEAL
600.39	94.00	TOP OF SANDPACK
597.67	96.72	TOP OF SCREEN
595.47	98.92	BOTTOM OF SCREEN
595.17	99.22	BOTTOM OF WELL
593.39	101.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER: Steel)
RISER PIPE ABOVE W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304) SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	98.47
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	2.2
TOTAL LENGTH OF CASING (ft)	100.97
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW10

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB10

STATE PLANE COORDINATE: X 977306.6 E Y 1140795.337 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: M. Leddy

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): None

LOGGED BY: M. Leddy DATE STARTED: 07/10/01 DATE FINISHED: 07/10/01

REPORT FORM COMPLETED BY: M. Leddy DATE: 09/20/2001

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Not Applicable

INSTALLATION METHOD: Not Applicable

SETTING TIME: Not Applicable

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)

(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

TYPE OF SAND PACK: Quartz

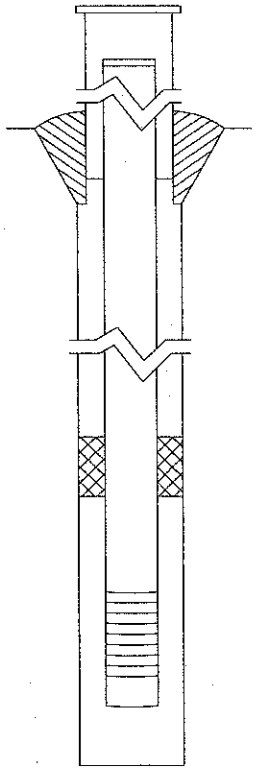
GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable

(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
---	---	TOP OF PROTECTIVE CASING
674.84	-2.54	TOP OF RISER PIPE
672.30	0	GROUND SURFACE
NA	NA	TOP OF ANNULAR SEALANT
666.18	6.12	STATIC WATER LEVEL (AFTER COMPLETION)
670.30	2.00	TOP OF SEAL
668.80	3.50	TOP OF SANDPACK
667.30	5.00	TOP OF SCREEN
657.60	14.70	BOTTOM OF SCREEN
657.30	15.00	BOTTOM OF WELL
657.30	15.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER) Steel
RISER PIPE ABOVE W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304) SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304) SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	7.54
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	9.7
TOTAL LENGTH OF CASING (ft)	17.54
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency Well Completion Report

SITE #: 0418080002 / ILD 005 078 126 COUNTY: Douglas WELL #: MW11

SITE NAME: Millennium (Equistar Chemicals)/Tuscola, Illinois BOREHOLE #: SB11

STATE PLANE COORDINATE: X 982520.0 E Y 1143360.942 N (or) LATITUDE: LONGITUDE:

SURVEYED BY: Illini Engineering Associates/Robert L. Cox ILL REGISTRATION #: 2442

DRILLING CONTRACTOR: Boart-Longyear DRILLER: D. Duscher

CONSULTING FIRM: Clayton Group Services, Inc. GEOLOGIST: M. Leddy

DRILLING METHOD: Rotosonic Drill DRILLING FLUIDS (TYPE): Water

LOGGED BY: M. Leddy DATE STARTED: 07/10/01 DATE FINISHED: 07/11/01

REPORT FORM COMPLETED BY: M. Leddy DATE: 09/20/01

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite grout

INSTALLATION METHOD: Tremie pipe

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL-

GRANULAR, PELLET, SLURRY, (CHIPS)
(CIRCLE ONE)

INSTALLATION METHOD: Poured

SETTING TIME: ~ 15 minutes

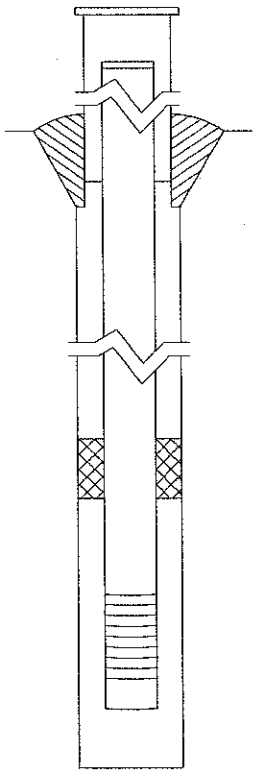
TYPE OF SAND PACK: Quartz

GRAIN SIZE: 40-60 U.S. Standard Series Sieve

INSTALLATION METHOD: Poured

TYPE OF BACKFILL MATERIAL: Not Applicable
(IF APPLICABLE)

INSTALLATION METHOD: Not Applicable



ELEVATIONS (MSL) *	DEPTHS (BGS)	(.01 ft)
----	----	TOP OF PROTECTIVE CASING
698.28	-2.70	TOP OF RISER PIPE
695.58	0	GROUND SURFACE
692.08	3.50	TOP OF ANNULAR SEALANT
658.74	36.80	STATIC WATER LEVEL (AFTER COMPLETION)
603.58	92.00	TOP OF SEAL
598.08	97.50	TOP OF SANDPACK
596.78	98.80	TOP OF SCREEN
594.18	101.40	BOTTOM OF SCREEN
593.58	102.00	BOTTOM OF WELL
590.58	105.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS

(CIRCLE ONE)

PROTECTIVE CASING	SS304, SS316, PTFE, PVC OR (OTHER: Steel)
RISER PIPE ABOVE W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
RISER PIPE BELOW W.T.	(SS304), SS316, PTFE, PVC OR OTHER:
SCREEN	(SS304), SS316, PTFE, PVC OR OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE (in.)	6
ID OF RISER PIPE (in)	2
PROTECTIVE CASING LENGTH (ft)	5
RISER PIPE LENGTH (ft)	101.7
BOTTOM OF SCREEN TO END CAP (ft)	0.3
SCREEN LENGTH (1st SLOT TO LAST SLOT) (ft)	2.7
TOTAL LENGTH OF CASING (ft)	104.7
SCREEN SLOT SIZE **	0.010"

** HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

APPENDIX C-3

WELL CONSTRUCTION REPORTS

W Cons tior port

PE OR PRESS FIRMLY WITH BLACK INK PEN
MPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

1. Type of Well: a. **Driven** Well: Casing diam. _____in. Depth _____ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of _____ft.
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 6 in. to 54.0 ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Portonite/Cement	4		2.8	41.4	40

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#6 Global Drilling	46.4	47
Quartz	#7 Global Drilling	47	54

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 11/4/00 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA
11. Pump Installer: NA License # _____
12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

DO Not write on these lines

IMPORTANT NOTICE: This State Agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act 85-0863. DISCLOSURE OF THIS INFORMATION IS MANDATORY. This form has been approved by the Forms Management Center.
IL 482-0126 rev. 12/98

Date 1/12/1

GEOLOGICAL & WATER SURVEY WELL RECORD

13. Property Owner _____ Well # MW-15
14. Driller D. Duscher License # _____ 15.
Name of Drilling Company Boart Longyear Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 11/4/00
18. Well **SITE** address 1695 East US Hwy 36 Tuscola, IL 61953 19.
Township Name Garrett Land ID # _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 16N Range 7E Section 36
c. NE Quarter NW Quarter NE Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St. Steel	Threaded	0.010"	49.1	53.7

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Sand at a depth of 50.5 ft. to 53.5 ft.
a. static water level 24.17 ft. below casing which is 22 in. above ground
b. pumping level is _____ ft. pumping _____ gpm after pumping for _____ hours

24. Earth Materials Passed Through

	From (ft.)	To (ft.)
Silty Clay	0	45.0
Clayey Silt	45.0	46.1
Silt	46.1	50.5
Sand	50.5	53.5
Silt	53.5	54.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

_____ _____
25. Licensed Water Well Contractor Signature License Number

W... Con... tion ...port

PE OR PRESS FIRMLY WITH BLACK INK PEN
COMPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

Date 1/12

1. Type of Well: a. **Driven** Well: Casing diam. _____in. Depth _____ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter _____in. to _____ft.; _____in. to_____ft.; _____in. to_____ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of _____ft.
Hole Diameter _____in. to _____ft.; _____in. to_____ft.; _____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 6 in. to 20.0 ft.; _____in. to_____ft.; _____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
NA					

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#8 Global Drilling	8.7	9.4
Quartz	#7 Global Drilling	9.4	20

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 11/3/00 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA

11. Pump Installer: _____ License # _____

12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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IL 482-0126 rev. 12/98

GEOLOGICAL & WATER SURVEY WELL RECORD

13. Property Owner _____ Well # MW02S
14. Driller D. Dusscher License # _____ 15.
Name of Drilling Company Goodyear Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 11/3/00
18. Well **SITE** address 625 East US Hwy 36, Tuscola, IL 61953 19.
Township Name Garrett Land ID # _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 16N Range 7E Section 36
c. NE Quarter SW Quarter NE Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St. Steel	Threaded	0.010"	10	19.7

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Silty Clay at a depth of 10 ft. to 19.7 ft.
a. static water level 3.10 ft. below casing which is 2½ in. above ground
b. pumping level is _____ ft. pumping _____gpm after pumping for _____hours

24. Earth Materials Passed Through

	From (ft.)	To (ft.)
Silty Clay	0	20

(If DRY HOLE, fill out log & indicate how hole was sealed)

25. Licensed Water Well Contractor Signature _____ License Number _____

W[illegible] Construction Report

'PE OR PRESS FIRMLY WITH BLACK INK PEN
MPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

Date 1/15/21

GEOLOGICAL & WATER SURVEY WELL RECORD

1. Type of Well: a. **Driven** Well: Casing diam. _____ in. Depth _____ ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____ in. to _____ ft.; ____ in. to _____ ft.; ____ in. to _____ ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of _____ ft.
Hole Diameter ____ in. to _____ ft.; ____ in. to _____ ft.; ____ in. to _____ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 6 in. to 15.0 ft.; ____ in. to _____ ft.; ____ in. to _____ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
NA					

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#8 Global Drilling		
Quartz	#7 Global Drilling	5	15

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 11/16/20 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle _____ gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA

11. Pump Installer: NA License # _____

12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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13. Property Owner _____ Well # MW03S
14. Driller D. Dischar License # _____ 15.
Name of Drilling Company Boart Longyear Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 11/16/20
18. Well **SITE** address 126 East US Hwy 36, Tuscola, IL 61953 19.
Township Name Garrett Land ID # _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 16N Range 7E Section 36
c. SW Quarter SW Quarter NE Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St. Steel	Threaded	0.010"	5.0	14.7

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Silty Clay at a depth of 5 ft. to 14.7 ft.
a. static water level 6.39 ft. below casing which is ____ in. above ground
b. pumping level is ____ ft. pumping ____ gpm after pumping for ____ hours

24. Earth Materials Passed Through

	From (ft.)	To (ft.)
Silty Clay	0	15.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

25. Licensed Water Well Contractor Signature _____ License Number _____

W Cons tior port

PE OR PRESS FIRMLY WITH BLACK INK PEN
MPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

1. Type of Well: a. **Driven** Well: Casing diam. _____in. Depth _____ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of _____ft.
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 6 in. to 15.0 ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
NA					

e. Well finished within: [ ] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#4 Global Drilling		
Quartz	#7 Global Drilling	5	15

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 11/18/00 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA

11. Pump Installer: _____ License # _____

12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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Date 1/12 1

GEOLOGICAL & WATER SURVEY WELL RECORD

13. Property Owner _____ Well # MW045
14. Driller D. Duscher License # _____ 15.
Name of Drilling Company Boart Longyear Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 11/18/00
18. Well SITE address 125 East US Hwy 36, Tuscola IL 61953 19.
Township Name Garrett Land ID # _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 14N Range 7E Section 36
c. NE Quarter SE Quarter NW Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St. Steel	Threaded	0.010"	5	14.7

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Silty Clay at a depth of 5 ft. to 14.7 ft.
a. static water level 13.00 ft. below casing which is ____in. above ground
b. pumping level is _____ ft. pumping _____gpm after pumping for _____hours

24. Earth Materials Passed Through

	From (ft.)	To (ft.)
Silty Clay	0	15.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

_____ _____
25. Licensed Water Well Contractor Signature License Number

W[illegible] Con[illegible]ction [illegible]port

'PE OR PRESS FIRMLY WITH BLACK INK PEN
MPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

Date 1/12 [illegible]

GEOLOGICAL & WATER SURVEY WELL RECORD

1. Type of Well: a. **Driven** Well: Casing diam. _____in. Depth _____ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of _____ft.
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 6 in. to 25.0ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
NA					

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#6 Global Drilling	13.5	14
Quartz	#7 Global Drilling	14	25

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 11/17/00 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA

11. Pump Installer: _____ License # _____

12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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13. Property Owner _____ Well # MW05S
14. Driller D. Duscher License # _____ 15.
Name of Drilling Company Bart Longyear Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 11/17/00
18. Well **SITE** address 625 East US Hwy 36, Tuscola IL 61953 19.
Township Name Arcett Land ID # _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 16N Range 7E Section 36
c. NE Quarter SW Quarter NW Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St. Steel	Threaded	0.06"	15.0	24.7

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Silty Clay at a depth of 15 ft. to 24.7 ft.
a. static water level 10.90 ft. below casing which is ____ in. above ground
b. pumping level is _____ ft. pumping _____gpm after pumping for _____hours

24. Earth Materials Passed Through

	From (ft.)	To (ft.)
Silty Clay	0	25.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

25. Licensed Water Well Contractor Signature _____ License Number _____

W Cons tio port

'PE OR PRESS FIRMLY WITH BLACK INK PEN
MPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

Date 1/12 /

1. Type of Well: a. **Driven** Well: Casing diam. _____in. Depth _____ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of _____ft.
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 6 in. to 40.0 ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Bentonite/Cement	4		3.2	23.5	22

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#1 Global Drilling	23.5	29
Quartz	#1 Global Drilling	29	40

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 11/6/00 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA

11. Pump Installer: _____ License # _____

12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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GEOLOGICAL & WATER SURVEY WELL RECORD

13. Property Owner _____ Well # MW065
14. Driller D. Duscher License # _____ 15.
Name of Drilling Company Boart Longyear Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 11/6/00
18. Well **SITE** address 625 East US Hwy 36, Tuscola IL 61953 19.
Township Name Garrett Land ID # _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 16N Range 7E Section 36
c. NE Quarter SW Quarter NW Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St. Steel	Threaded	0.010"	30	39.7

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Silty clay silt at a depth of 30 ft. to 39.7 ft.
a. static water level 9.03 ft. below casing which is 24 in. above ground
b. pumping level is _____ ft. pumping _____gpm after pumping for _____hours

24. Earth Materials Passed Through

	From (ft.)	To (ft.)
Silty Clay	0	13.2
Silt	13.2	16.6
Silty Clay	16.6	33.4
Clayey Silt	33.4	35.5
Silt	35.5	40.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

25. Licensed Water Well Contractor Signature License Number

W[illegible]Cons[illegible]tion [illegible]port

PE OR PRESS FIRMLY WITH BLACK INK PEN
.MPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

Date 1/12 [illegible]

GEOLOGICAL & WATER SURVEY WELL RECORD

1. Type of Well: a. **Driven** Well: Casing diam. _____ in. Depth _____ ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____ in. to _____ ft.; ____ in. to _____ ft.; ____ in. to _____ ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of _____ ft.
Hole Diameter ____ in. to _____ ft.; ____ in. to _____ ft.; ____ in. to _____ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 6 in. to 35.0 ft.; ____ in. to _____ ft.; ____ in. to _____ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Bentonite/Cement	2		2	19	18

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#8 Global Drilling	23.9	24.4
Quartz	#7 Global Drilling	24.4	35.0

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 11/7/00 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA

11. Pump Installer: _____ License # _____

12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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13. Property Owner _____ Well # MW03
14. Driller B. Bischer License # _____ 15.
Name of Drilling Company Boart Longyear Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 11/7/00
18. Well **SITE** address 625' East US Hwy 36, Tuscola, IL 61953 19.
Township Name Garrett Land ID # _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 16N Range 7E Section 36
c. SE Quarter (NW) Quarter NW Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St. Steel	Threaded	0.010"	25	34.7

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Silty Clay at a depth of 25 ft. to 34.7 ft.
a. static water level 11.02 ft. below casing which is 25 in. above ground
b. pumping level is _____ ft. pumping _____ gpm after pumping for _____ hours

24. Earth Materials Passed Through	From (ft.)	To (ft.)
Silty Clay	0	31.8
Organic Silty Clay	31.8	34.7
Silty Clay	34.7	35.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

_____ _____
25. Licensed Water Well Contractor Signature License Number

W" Cons[illegible]ction [illegible]port

'PE OR PRESS FIRMLY WITH BLACK INK PEN
.MPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

Date 1/1[illegible] /[illegible]

1. Type of Well: a. **Driven** Well: Casing diam. ______in. Depth ________ft.
   b. **Bored** Well: Buried Slab [ ] Yes [ ] No
   Hole Diameter _____in. to _______ft.; _____in. to_______ft.; ____in. to_______ft.
   c. **Drilled** Well: **PVC** casing Formation packer set at depth of _______ft.
   Hole Diameter _____in. to _______ft.; _____in. to_______ft.; ____in. to_______ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

   d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
   Hole Diameter 6 in. to 14.0 ft.; _____in. to_______ft.; ____in. to_______ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
NA					

   e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#8 Global Drilling		
Quartz	#7 Global Drilling	3.5	14

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
   [X] Monitoring [ ] Other ________________
3. Date Well Completed: 11/19/00 Well Disinfected [ ] Yes [X] No
   Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA

11. Pump Installer: ______________________ License # ______________

12. ______________________ License # ______________
    Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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GEOLOGICAL & WATER SURVEY WELL RECORD

13. Property Owner ______________________ Well # MW-55
14. Driller D. Buecher License # ______________ 15.
Name of Drilling Company Boart Longyear Company 16.
Permit No. ______________ Date Issued ______________
17. Date Drilling Started 11/19/00
18. Well **SITE** address 626 East US Hwy 36 Tuscola IL 61953 19.
Township Name Tuscola Land ID # ______________ 20.
Subdivision Name ______________ Lot # ______________ 21.
Location: a. County Douglas
   b. Township 16N Range 8E Section 29
   c. NW Quarter SW Quarter SW Quarter
   d. coordinates: ______________ Site Elevation ________ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St. Steel	Threaded	0.010"	4.1	13.7

(*) ________________________________
(List reason for liner, type of upper and lower seals installed)

23. Water from Sand at a depth of 5.0 ft. to 6.3 ft.
   a. static water level 6.98 ft. below casing which is _____in. above ground
   b. pumping level is _____ ft. pumping _____gpm after pumping for _____hours

24. Earth Materials Passed Through	From (ft.)	To (ft.)
Silty Clay	0	5.0
Sand	5.0	6.3
Silty Clay	6.3	14.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

25. Licensed Water Well Contractor Signature ______________ License Number ______________

W[illegible]Cons[illegible]tio[illegible]port

'PE OR PRESS FIRMLY WITH BLACK INK PEN
MPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

1. Type of Well: a. **Driven** Well: Casing diam. _____in. Depth _____ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of _____ft.
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 6 in. to 17.0 ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
NA					

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#7 Global Drilling		
Quartz	#7 Global Drilling	4	15

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 11/22/00 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA

11. Pump Installer: _____ License # _____

12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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Date 1/16 [illegible]

GEOLOGICAL & WATER SURVEY WELL RECORD

13. Property Owner _____ Well # MW095
14. Driller D. Duscher License # _____ 15.
Name of Drilling Company Boart Longyear Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 11/22/00
18. Well **SITE** address 125 East US Hwy 36 Tuscola IL 61953 19.
Township Name Tuscola Land ID # _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 16N Range 8E Section 31
c. SW Quarter SE Quarter SW Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St. Steel	Threaded	0.010"	5.0	14.7

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Silty Clay at a depth of 5 ft. to 14.7 ft.
a. static water level 4.26 ft. below casing which is _____in. above ground
b. pumping level is _____ ft. pumping _____gpm after pumping for _____hours

24. Earth Materials Passed Through

	From (ft.)	To (ft.)
Silty Clay	0	17.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

_____ _____
25. Licensed Water Well Contractor Signature License Number

W__ Cons__tion__port

PE OR PRESS FIRMLY WITH BLACK INK PEN
OMPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

1. Type of Well: a. **Driven** Well: Casing diam. ____ in. Depth ____ ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____ in. to ____ ft.; ____ in. to ____ ft.; ____ in. to ____ ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of ____ ft.
Hole Diameter ____ in. to ____ ft.; ____ in. to ____ ft.; ____ in. to ____ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 6 in. to 91.0 ft.; ____ in. to ____ ft.; ____ in. to ____ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Bentonite/Cement	7		2.7	68	67

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#8 Global Drilling	72	73.7
Quartz	#7 Global Drilling	73.7	85

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other ____
3. Date Well Completed: 11/3/00 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA

11. Pump Installer: NA License # ____

12. ____ License # ____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

DO Not write on these lines

IMPORTANT NOTICE: This State Agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act 85-0863. DISCLOSURE OF THIS INFORMATION IS MANDATORY. This form has been approved by the Forms Management Center.
IL 482-0126 rev. 12/98

Date 1/12 1

GEOLOGICAL & WATER SURVEY WELL RECORD

13. Property Owner ____ Well # MW01D
14. Driller D. Dischner License # ____ 15.
Name of Drilling Company Layne Longyear Company 16.
Permit No. ____ Date Issued ____
17. Date Drilling Started 11/3/00
18. Well **SITE** address 625 East US Hwy 36, Tuscola, IL 61953 19.
Township Name Garrett Land ID # ____ 20.
Subdivision Name ____ Lot # ____ 21.
Location: a. County Douglas
b. Township 16N Range 7E Section 36
c. NE Quarter NW Quarter NE Quarter
d. coordinates: ____ Site Elevation ____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St. Steel	Threaded	0.010"	80	84.7

(*) ____
(List reason for liner, type of upper and lower seals installed)
23. Water from Sand at a depth of 74.3 ft. to 84.8 ft.
a. static water level 24.82 ft. below casing which is 20 in. above ground
b. pumping level is ____ ft. pumping ____ gpm after pumping for ____ hours

24. Earth Materials Passed Through

	From (ft.)	To (ft.)
Silty Clay	0	45.0
Clayey Silt	45.0	46.1
Silt	46.1	50.5
Sand	50.5	53.5
Silt	53.5	55.5
Silty Clay	55.5	56.6
Sand	56.6	58.8
Silty Clay	58.8	71.0
Sand	71.0	71.8
Silt	71.8	74.3
Sand	74.3	84.8
Silty Clay	84.8	91.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

25. Licensed Water Well Contractor Signature ____ License Number ____

W Con ction por

'PE OR PRESS FIRMLY WITH BLACK INK PEN
MPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

1. Type of Well: a. **Driven** Well: Casing diam. _____in. Depth _____ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of _____ft.
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 6 in. to 75.0 ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Bentonite Cement	7		2.5	60.5	59

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#2 Global Drilling	65.5	66.5
Quartz	#7 Global Drilling	66.5	72

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 1/11/00 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA

11. Pump Installer: NA License # _____

12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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IL 482-0126 rev. 12/98

Date 1/16 4

GEOLOGICAL & WATER SURVEY WELL RECORD

13. Property Owner _____ Well # MW02D
14. Driller D. Dusaher License # _____ 15.
Name of Drilling Company Layne Western Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 1/11/00
18. Well **SITE** address 602 East US Hwy 36 Tuscola, IL 61953 19.
Township Name Garrett Land ID # _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 16N Range 7E Section 36
c. NE Quarter SW Quarter NE Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	Steel	Threaded	0.020"	67	71.7

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Sand at a depth of 68.9 ft. to 69.6 ft.
a. static water level 19.92 ft. below casing which is 20 in. above ground
b. pumping level is _____ ft. pumping _____gpm after pumping for _____hours

24. Earth Materials Passed Through	From (ft.)	To (ft.)
Silty Clay	0	46.4
Silt	46.4	47.4
Silty Clay	47.4	48.2
Silt	48.2	49.3
Silty Clay	49.3	67.9
Sand	67.9	69.6
Silty Clay	69.6	75.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

25. Licensed Water Well Contractor Signature _____ License Number _____

W ons tior port

PE OR PRESS FIRMLY WITH BLACK INK PEN
MPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

Date 1/L 21

1. Type of Well: a. **Driven** Well: Casing diam. _____in. Depth _____ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of _____ft.
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 12 in. to 85.5 ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Bentonite/Cement	10		3.9	65	64

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#8 Global Drilling	71.1	72.0
Quartz	#7 Global Drilling	72.0	79.5

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 11/15/00 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA

11. Pump Installer: NA License # _____

12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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GEOLOGICAL & WATER SURVEY WELL RECORD

13. Property Owner _____ Well # MW03D
14. Driller D. Drescher License # _____ 15.
Name of Drilling Company Bart Longyear Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 11/15/00
18. Well **SITE** address 625 East US Hwy 36, Tuscola, IL 61953 19.
Township Name Garrett Land ID # _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 16N Range 7E Section 36
c. SW Quarter SW Quarter NE Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	st steel	threaded	0.010"	74.5	79.5

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Sand at a depth of 72.8 ft. to 79.5 ft.
a. static water level 19.45 ft. below casing which is _____in. above ground
b. pumping level is _____ ft. pumping _____gpm after pumping for _____hours

24. Earth Materials Passed Through

	From (ft.)	To (ft.)
Silty Clay	0	43.4
Silt	43.4	51.4
Sand	51.4	54.1
Clayey Silt	54.1	63.1
Silt	63.1	66.0
Sand	66.0	66.6
Clayey Silt	66.6	72.8
Sand	72.8	79.5
Silt	79.5	80.0
Clayey Silt	80.0	81.1
Sand	81.1	81.9
Clayey Silt	81.9	85.5

(If DRY HOLE, fill out log & indicate how hole was sealed)

_____ _____
25. Licensed Water Well Contractor Signature License Number

W[illegible]Cons[illegible]tior[illegible]port

PE OR PRESS FIRMLY WITH BLACK INK PEN
/PLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

Date 1/16 21

GEOLOGICAL & WATER SURVEY WELL RECORD

1. Type of Well: a. **Driven** Well: Casing diam. _____ in. Depth _____ ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____ in. to _____ ft.; ____ in. to _____ ft.; ____ in. to _____ ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of _____ ft.
Hole Diameter ____ in. to _____ ft.; ____ in. to _____ ft.; ____ in. to _____ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 6 in. to 102.0 ft.; ____ in. to _____ ft.; ____ in. to _____ ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Bentonite/Cement	8		5.3	73.5	72

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#8 Global Drilling	78.5	79
Quartz	#7 Global Drilling	79	102

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 11/16/20 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA

11. Pump Installer: NA License # _____

12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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13. Property Owner _____ Well # (Mw)04D
14. Driller D. Dascher License # _____ 15.
Name of Drilling Company Bovay Longyear Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 11/8/20
18. Well **SITE** address 1.03 East US Hwy 36 Tuscola IL 61953 19.
Township Name Garrett Land ID # _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 16N Range 7E Section 36
c. NE Quarter SE Quarter NW Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St. Steel	Threaded	0.010	97	101.7

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Sand at a depth of 98 ft. to 101.4 ft.
a. static water level 95.2 ft. below casing which is 26 in. above ground
b. pumping level is _____ ft. pumping _____ gpm after pumping for _____ hours

24. Earth Materials Passed Through	From (ft.)	To (ft.)
Silty Clay	0	47.7
Clayey Silt	47.7	57.0
Sand	57.0	58.5
Clayey Silt	58.5	79.0
Sand	79.0	79.3
Silty Clay	79.3	79.9
Sand	79.9	97.0
Silt	97.0	97.6
Silty Clay	97.6	98.0
Sand	98.0	101.4
Clayey Silt	101.4	102.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

_____ _____
25. Licensed Water Well Contractor Signature License Number

W[illegible]Cons[illegible]tio[illegible]port

PE OR PRESS FIRMLY WITH BLACK INK PEN
MPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

1. Type of Well: a. **Driven** Well: Casing diam. _____in. Depth _____ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of _____ft.
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 6 in. to 76.0 ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Bentonite/Cement	5		4.6	6.7	65.0

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#8 Global Drilling	71.7	72.5
Quartz	#7 Global Drilling	72.5	83

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 11/16/00 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA
11. Pump Installer: NA License # _____
12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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Date 1/12 01

GEOLOGICAL & WATER SURVEY WELL RECORD

13. Property Owner _____ Well # MW05D
14. Driller D. Bascher License # _____ 15.
Name of Drilling Company Boart Longyear Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 11/16/00
18. Well **SITE** address 625 East US Hwy 36 Tuscola, IL 61953 19.
Township Name Garrett Land ID # _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 16N Range 7E Section 36
c. NE Quarter SW Quarter NW Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St. Steel	Threaded	0.010"	80.5	83.0

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Sand at a depth of 71.9 ft. to 83.0 ft.
a. static water level 15.53 ft. below casing which is _____in. above ground
b. pumping level is _____ ft. pumping _____gpm after pumping for _____hours

24. Earth Materials Passed Through

	From (ft.)	To (ft.)
Silty Clay	0	41.6
Silt	41.6	43.7
Clayey Silt	43.7	47.2
Silt	47.2	48.9
Clayey Silt	48.9	73.0
Sand	73.0	78.7
Silt	78.7	79.9
Sand	79.9	83.0
Clayey Silt	83.0	86.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

25. Licensed Water Well Contractor Signature License Number

W[illegible]Cons[illegible]tior[illegible]port

PE OR PRESS FIRMLY WITH BLACK INK PEN
MPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

Date 1/16/01

GEOLOGICAL & WATER SURVEY WELL RECORD

1. Type of Well: a. **Driven** Well: Casing diam. _____in. Depth _____ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of _____ft.
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 6 in. to 75.0 ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Bentonite/Cement	7		2.8	56	55

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#8 Global Drilling	61	62
Quartz	#7 Global Drilling	62	71.3

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 1/5/00 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA
11. Pump Installer: NA License # _____
12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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13. Property Owner _____ Well # MW-6D
14. Driller D. Butcher License # _____ 15.
Name of Drilling Company Boart Longyear Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 1/5/00
18. Well **SITE** address 625 East US Hwy 36 Tuscola, IL 61953 19.
Township Name Garrett Land ID # _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 16N Range 7E Section 36
c. NE Quarter SW Quarter NW Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St Steel	Threaded	0.010"	66.3	70.9

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Sand at a depth of 62.9 ft. to 71.3 ft.
a. static water level 2.57 ft. below casing which is .25 in. above ground
b. pumping level is _____ ft. pumping _____gpm after pumping for _____hours

24. Earth Materials Passed Through

	From (ft.)	To (ft.)
Silty Clay	0	13.2
Silt	13.2	16.6
Silty Clay	16.6	33.4
Clayey Silt	33.4	35.5
Silt	35.5	40.0
Clayey Silt	40.0	62.9
Sand	62.9	71.3
Clayey Silt	71.3	75.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

_____ _____
25. Licensed Water Well Contractor Signature License Number

W[illegible]Con[illegible]ctio[illegible]por[illegible]

PE OR PRESS FIRMLY WITH BLACK INK PEN
MPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

Date 1/12

1. Type of Well: a. **Driven** Well: Casing diam. _____in. Depth _____ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of _____ft.
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 6 in. to 74.0 ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Bentonite/Cement	6		2.5	57	56

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#8/Global Drilling	62.5	63
Quartz	#7/Global Drilling	63	73.5

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 11/7/00 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) _____ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA
11. Pump Installer: NA License # _____
12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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GEOLOGICAL & WATER SURVEY WELL RECORD

13. Property Owner _____ Well # MW-7D
14. Driller D. Dischee License # _____ 15.
Name of Drilling Company Hart Longyear Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 11/6/00
18. Well **SITE** address 25 East US Hwy 36, Tuscola, IL 61953 19.
Township Name Garrett Land ID # _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 16N Range 7E Section 36
c. SE Quarter NW Quarter NW Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St. Steel	Threaded	0.010"	48.5	73.2

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Sand at a depth of 65.3 ft. to 73.2 ft.
a. static water level 10.27 ft. below casing which is 28 in. above ground
b. pumping level is _____ ft. pumping _____gpm after pumping for _____hours

24. Earth Materials Passed Through

	From (ft.)	To (ft.)
Silty Clay	0	31.8
Organic Silty Clay	31.8	34.7
Silty Clay	34.7	36.3
Silt	36.3	36.6
Silty Clay	36.6	42.0
Clayey Silt	42.0	56.5
Sand	56.5	57.7
Clayey Silt	57.7	59.0
Silt	59.0	60.0
Clayey Silt	60.0	64.2
Silt	64.2	65.3
Sand	65.3	73.2
Clayey Silt	73.2	79.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

25. Licensed Water Well Contractor Signature License Number

Well Cor tion Report

Date 1/16, 11

TYPE OR PRESS FIRMLY WITH BLACK INK PEN
COMPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

1. Type of Well: a. **Driven** Well: Casing diam. _____in. Depth _____ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.
c. **Drilled** Well: **PVC** casing Formation packer set at depth of _____ft.
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 6 in. to 101.0 ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Bentonite/Cement	6		3	77.0	76.0

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#8 Global Drilling	82.5	83
Quartz	#7 Global Drilling	83	86

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 11/19/00 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield N/A gpm
4. Date Permanent Pump Installed N/A
5. Pump Capacity N/A gpm Set at (depth) N/A ft.
6. Pitless Adapter Model and Manufacturer: N/A
7. Well Cap Type and Manufacturer N/A
8. Pressure Tank: Working Cycle N/A gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company N/A
11. Pump Installer: N/A License # _____
12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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GEOLOGICAL & WATER SURVEY WELL RECORD

13. Property Owner _____ Well # MW-6D
14. Driller D. Dresher License # _____ 15.
Name of Drilling Company Boart Longyear Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 11/18/00
18. Well **SITE** address 1.25 East US Hwy 36 Tuscola, IL 61953 19.
Township Name Tuscola Land ID # _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 16N Range 8E Section 29
c. NW Quarter SW Quarter SW Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	ft. Steel	Threaded	0.010"	73.5	Blank

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Sand at a depth of 84.5 ft. to 85.5 ft.
a. static water level 28.0 ft. below casing which is ____in. above ground
b. pumping level is _____ ft. pumping _____gpm after pumping for _____hours

24. Earth Materials Passed Through

	From (ft.)	To (ft.)
Silty Clay	0	5.0
Sand	5.0	~~10.3~~ 6.3
Silty Clay	10.3	48.3
Silt	48.3	51.0
Clayey Silt	51.0	54.0
Silt	54.0	57.0
Clayey Silt	57.0	58.0
Organic Silt	58.0	59.1
Clayey Silt	59.1	84.5
Sand	84.5	85.5
Clayey Silt	85.5	101.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

25. Licensed Water Well Contractor Signature _____ License Number _____

W[illegible]Cons[illegible]tion[illegible]port

PE OR PRESS FIRMLY WITH BLACK INK PEN
.MPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

Date 1/16/1

GEOLOGICAL & WATER SURVEY WELL RECORD

1. Type of Well: a. **Driven** Well: Casing diam. _____in. Depth _____ft.
b. **Bored** Well: Buried Slab [ ] Yes [ ] No
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.
c. **Drilled** Well: PVC casing Formation packer set at depth of _____ft.
Hole Diameter ____in. to _____ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
Hole Diameter 12 in. to 101.0 ft.; ____in. to_____ft.; ____in. to_____ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Portland Cement	8		3	88	87

e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#8 Global Drilling	94	94.3
Quartz	#7 Global Drilling	94.3	98.5

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
[X] Monitoring [ ] Other _____
3. Date Well Completed: 11/21/00 Well Disinfected [ ] Yes [X] No
Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA

11. Pump Installer: NA License # _____

12. _____ License # _____
Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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13. Property Owner _____ Well # MW09D
14. Driller D. Duscher License # _____ 15.
Name of Drilling Company Boart Longyear Company 16.
Permit No. _____ Date Issued _____
17. Date Drilling Started 11/20/00
18. Well **SITE** address 625 East US Hwy 36, Tuscola, IL 61953 19.
Township Name Tuscola Land ID# _____ 20.
Subdivision Name _____ Lot # _____ 21.
Location: a. County Douglas
b. Township 16N Range 8E Section 31
c. SW Quarter SE Quarter SW Quarter
d. coordinates: _____ Site Elevation _____ ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St. Steel	Threaded	0.010"	91a0	98.5

(*) _____
(List reason for liner, type of upper and lower seals installed)

23. Water from Sand at a depth of 95.5 ft. to 98.3 ft.
a. static water level 31.98 ft. below casing which is _____in. above ground
b. pumping level is _____ ft. pumping _____gpm after pumping for _____hours

24. Earth Materials Passed Through

	From (ft.)	To (ft.)
Silty Clay	0	55.0
Silt	55.0	56.2
Clayey Silt	56.2	65.0
Silt	65.0	66.4
Clayey Silt	66.4	68.3
Sand	68.3	71.8
Silt	71.8	72.7
Clayey Silt	72.7	95.5
Sand	95.5	98.3
Silt	98.3	99.5
Clayey Silt	99.5	101.0

(If DRY HOLE, fill out log & indicate how hole was sealed)

25. Licensed Water Well Contractor Signature _____ License Number _____

Well Cons[illegible]ion Report

[illegible]E OR PRESS FIRMLY WITH BLACK INK PEN
[illegible]OMPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

Date 9/27/[illegible] ______

1. Type of Well: a. **Driven** Well: Casing diam. ______in. Depth _________ft.
   b. **Bored** Well: Buried Slab [ ] Yes [ ] No
   Hole Diameter _____in. to _______ft.; _____in. to_______ft.; _____in. to_______ft.
   c. **Drilled** Well: **PVC** casing Formation packer set at depth of _______ft.
   Hole Diameter _____in. to _______ft.; _____in. to_______ft.; _____in. to_______ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

   d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
   Hole Diameter 6 in. to _______ft.; _____in. to_______ft.; _____in. to_______ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
Bentonite/Cement	9		3.5	92	90

   e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz #15	# Red Flint	97.5	98
Quartz sand	# Red Flint	98	105

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
   [X] Monitoring [ ] Other ____________
3. Date Well Completed: 7/11/01 Well Disinfected [ ] Yes [X] No
   Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA

11. Pump Installer: NA License # ____________

12. ______________________ License # ____________
    Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
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GEOLOGICAL & WATER SURVEY WELL RECORD

13. Property Owner ____________ Well # MW11
14. Driller Dale Durbaker License # ____________ 15.
Name of Drilling Company Earl Longyear Company 16.
Permit No. ____________ Date Issued ____________
17. Date Drilling Started 7/10/01
18. Well SITE address 625 East Highway 36, Tuscola, IL 61953 19.
Township Name Tuscola Land ID # ____________ 20.
Subdivision Name ____________ Lot # ____________ 21.
Location: a. County Douglas
b. Township 16N Range 8E Section 30
c. SW Quarter SE Quarter SW Quarter
d. coordinates: ____________ Site Elevation 695.58 ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	SS Steel	threaded	0.010	92.8	101.4

(*) ____________
(List reason for liner, type of upper and lower seals installed)

23. Water from Sand at a depth of 90 ft. to 101.2 ft.
   a. static water level 33.98 ft. below casing which is 2.54 in. above ground
   b. pumping level is _____ ft. pumping _____gpm after pumping for _____hours

24. Earth Materials Passed Through	From (ft.)	To (ft.)
Silty clay	0	54.1
Sand	54.1	56.7
organic Silt	56.7	63.3
clayey Silt	63.3	66
Sand	66	69.1
clayey Silt	69.1	72.5
Silt	72.5	75
Sand	75	77.7
Silty Sand	77.7	78.6
clayey Silt	78.6	98
Sand	98	101.2
Silt	101.2	103.8
clayey Silt	103.8	105

(If DRY HOLE, fill out log & indicate how hole was sealed)

25. Licensed Water Well Contractor Signature ____________ License Number ____________

Well Cons[illegible]tion Report

[illegible]PE OR PRESS FIRMLY WITH BLACK INK PEN
COMPLETE WITHIN 30 DAYS OF WELL COMPLETION
AND SEND TO THE APPROPRIATE HEALTH DEPARTMENT

Date 9/27 ______

1. Type of Well: a. **Driven** Well: Casing diam. ______in. Depth ________ft.
   b. **Bored** Well: Buried Slab [ ] Yes [ ] No
   Hole Diameter ____in. to ______ft.; ____in. to ______ft.; ____in. to ______ft.
   c. **Drilled** Well: **PVC** casing Formation packer set at depth of ______ft.
   Hole Diameter ____in. to ______ft.; ____in. to ______ft.; ____in. to ______ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)

   d. **Drilled** Well: **Steel** Casing- - - Mechanically Driven [X] Yes [ ] No
   Hole Diameter 6 in. to 15 ft.; ____in. to ______ft.; ____in. to ______ft.

Type of Grout	# of Bags	Grout Weight	From (ft.)	To (ft.)	Tremie Depth (ft.)
NA					

   e. Well finished within: [X] Unconsolidated Materials [ ] Bedrock

f. Kind of Gravel Sand Pack	Grain Size/Supplier #	From (ft.)	To (ft.)
Quartz	#15 Red Flint	3.5	4.0
Quartz	20/20 Red Flint	4.0	15.0

2. Well Use: [ ] Domestic [ ] Irrigation [ ] Commercial [ ] Livestock
   [X] Monitoring [ ] Other ______
3. Date Well Completed: 7/10/01 Well Disinfected [ ] Yes [X] No
   Driller's estimated well yield NA gpm
4. Date Permanent Pump Installed NA
5. Pump Capacity NA gpm Set at (depth) NA ft.
6. Pitless Adapter Model and Manufacturer: NA
7. Well Cap Type and Manufacturer NA
8. Pressure Tank: Working Cycle NA gals. Captive Air: [ ] Yes [ ] No
9. Pump System Disinfected: [ ] Yes [ ] No
10. Name of Pump Company NA
11. Pump Installer: NA License # ______
12. ______ License # ______
    Licensed Pump Contractor Signature

Illinois Department of Public Health
Division of Environmental Health
525 W. Jefferson Street
Springfield, IL 62761

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GEOLOGICAL & WATER SURVEY WELL RECORD

13. Property Owner ______ Well # MW10
14. Driller [illegible] Duschar License # ______ 15.
Name of Drilling Company Boart Longyear Company 16.
Permit No. ______ Date Issued ______
17. Date Drilling Started 7/10/01
18. Well SITE address 625' East US Highway 36, Tuscola, IL 61953 19.
Township Name Garrett Land ID # ______ 20.
Subdivision Name ______ Lot # ______ 21.
Location: a. County Douglas
   b. Township 16N Range 7E Section 26
   c. SW Quarter SW Quarter NE Quarter
   d. coordinates: ______ Site Elevation 672.30 ft.(msl)

For Survey Use Only

22. Casings, Liners*, & Screen Information

Diam. (in.)	Material	Joint	Slot Size	From (ft.)	To (ft.)
2	St Steel	threaded	0.010	4.8	14.5

(*) ______
(List reason for liner, type of upper and lower seals installed)

23. Water from Silty Sand at a depth of 6.6 ft. to 8 ft.
   a. static water level [illegible] ft. below casing which is ~~54~~ in. above ground 30.48"
   b. pumping level is ______ ft. pumping ______gpm after pumping for ______hours

24. Earth Materials Passed Through	From (ft.)	To (ft.)
Silty clay	0	6.6
Silty Sand	6.6	8
Silty clay	8	10
Silty Sand	10	11
Silty clay	11	15

(If DRY HOLE, fill out log & indicate how hole was sealed)

25. Licensed Water Well Contractor Signature ______ License Number ______

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APPENDIX D

APPENDIX D

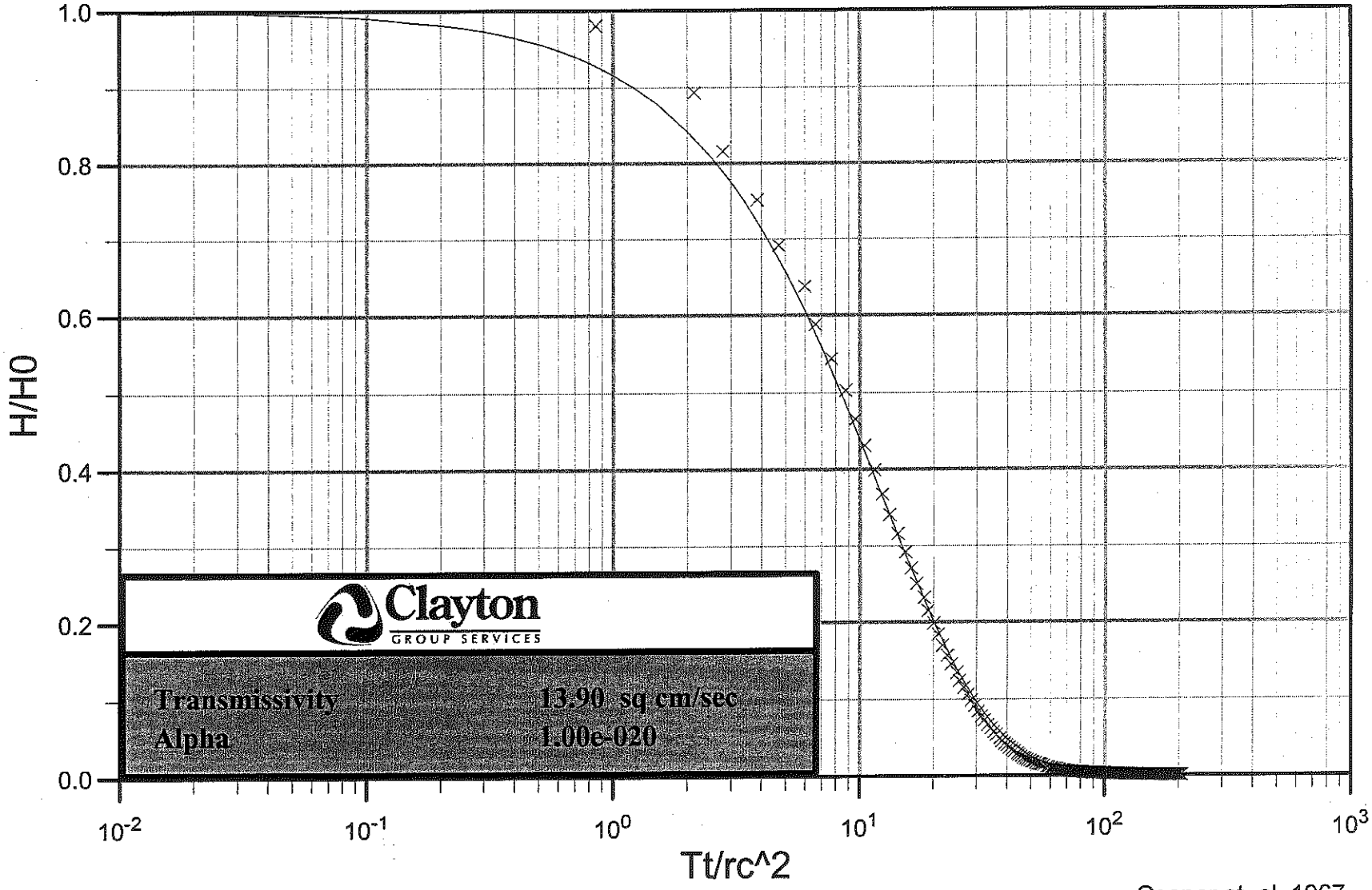
AQUIFER HYDRAULIC CONDUCTIVITY TESTING GRAPHS AND DATA

D-1 Graphs
D-2 Testing Data

APPENDIX D-1

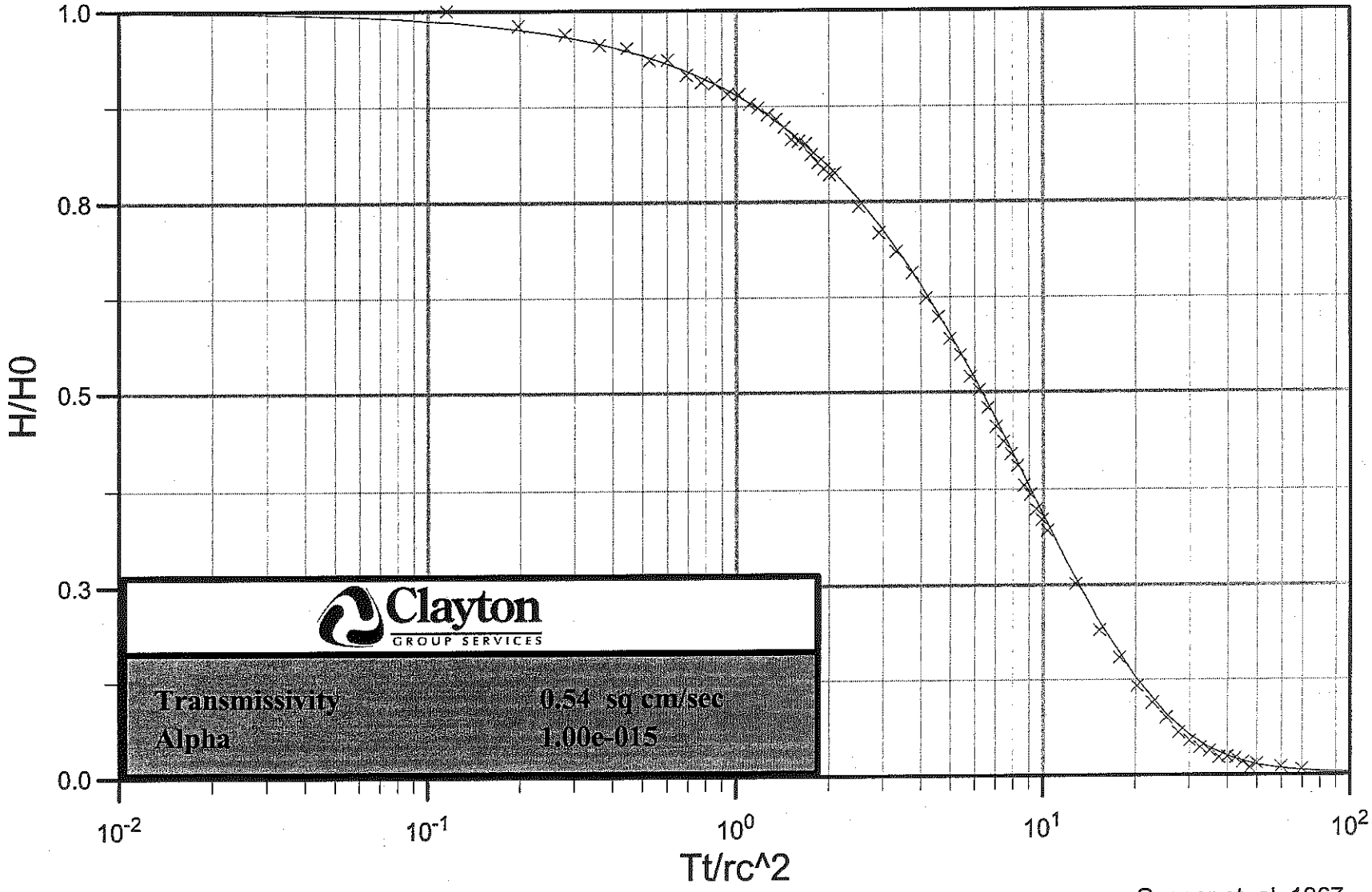
GRAPHS

Slugtest Results: MW01D Rising Head



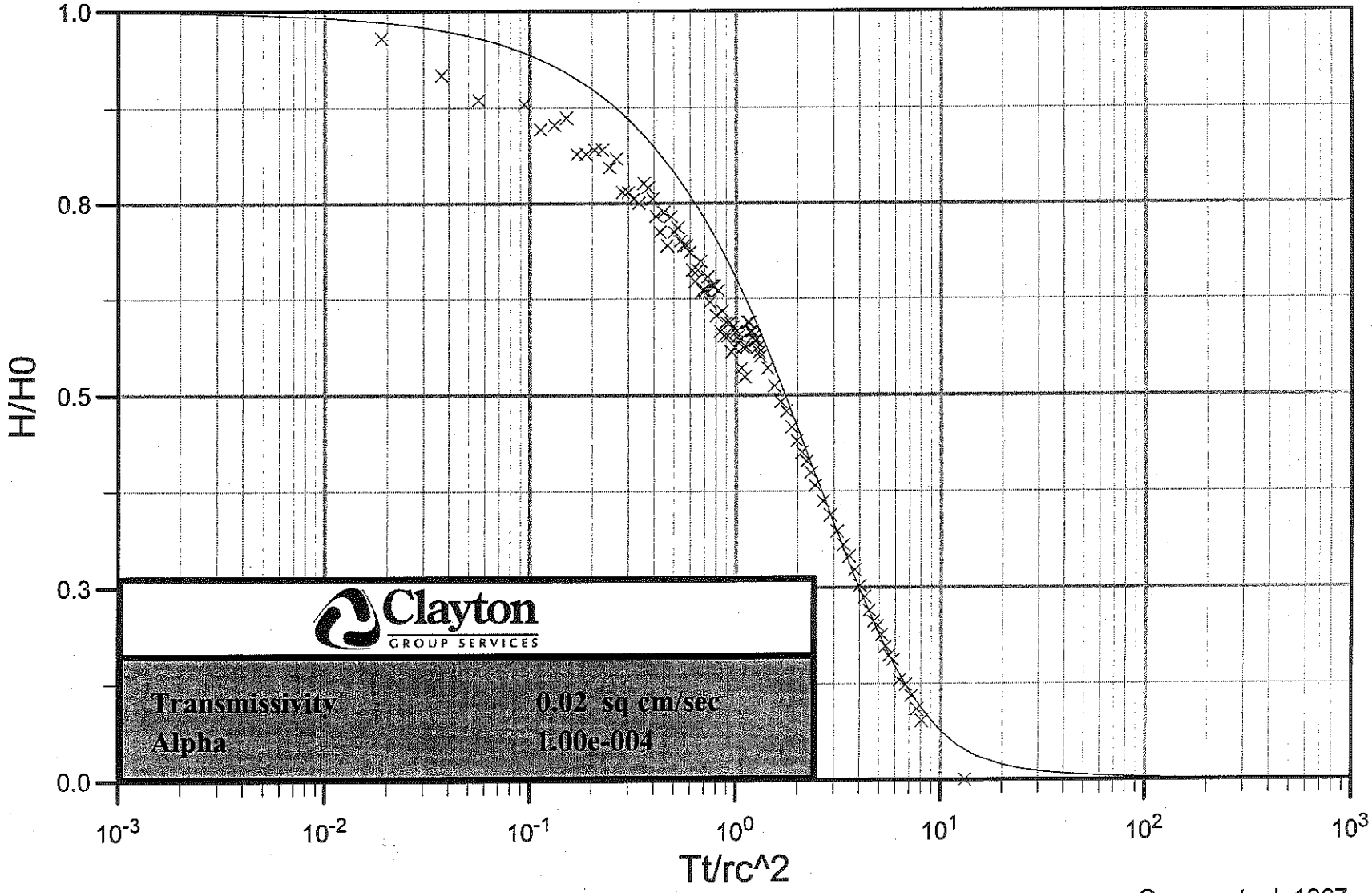
Cooper et. al. 1967

Slugtest Results: MW01S Rising Head



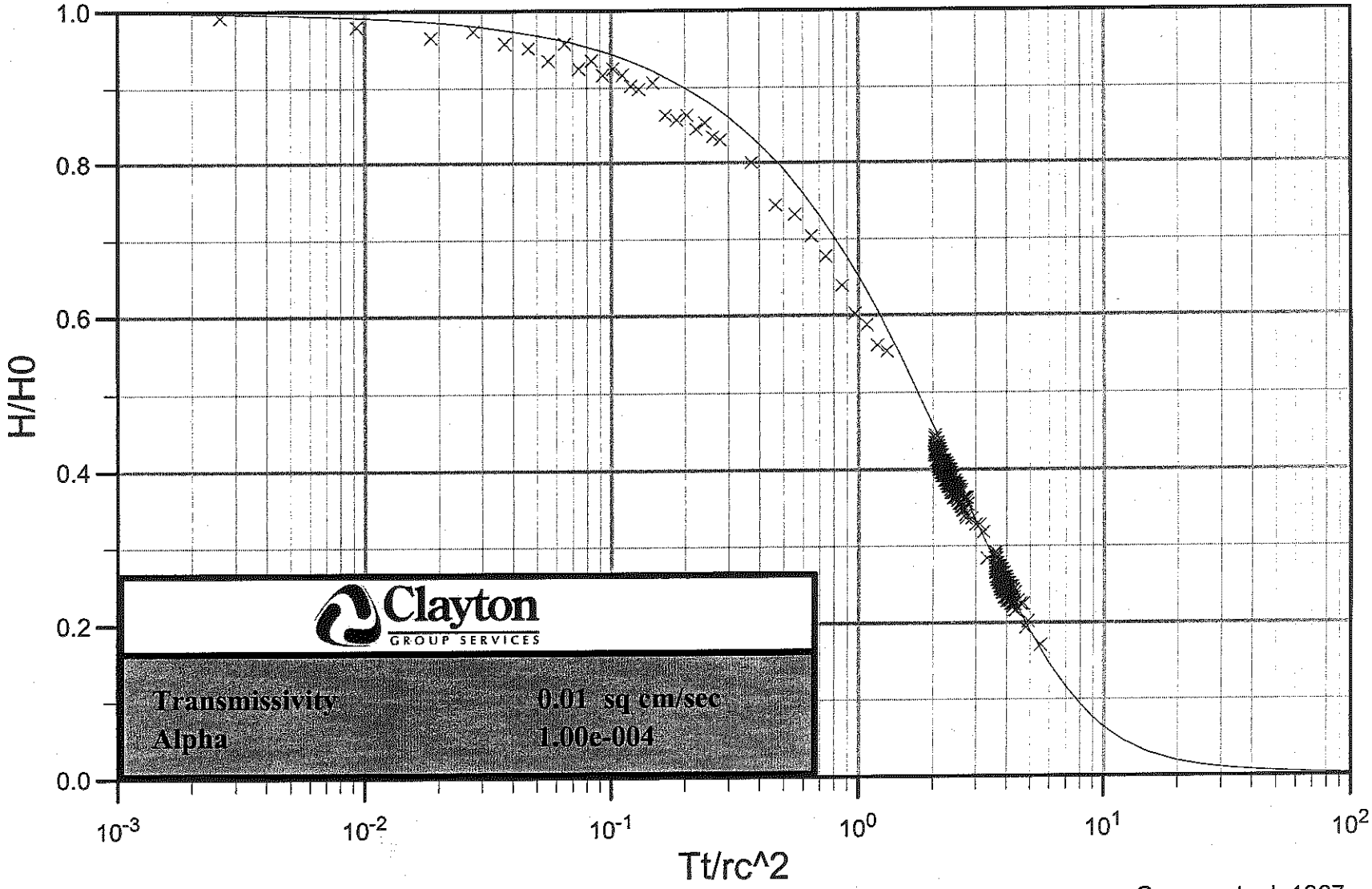
Cooper et. al. 1967

Slugtest Results: MW02D Rising Head



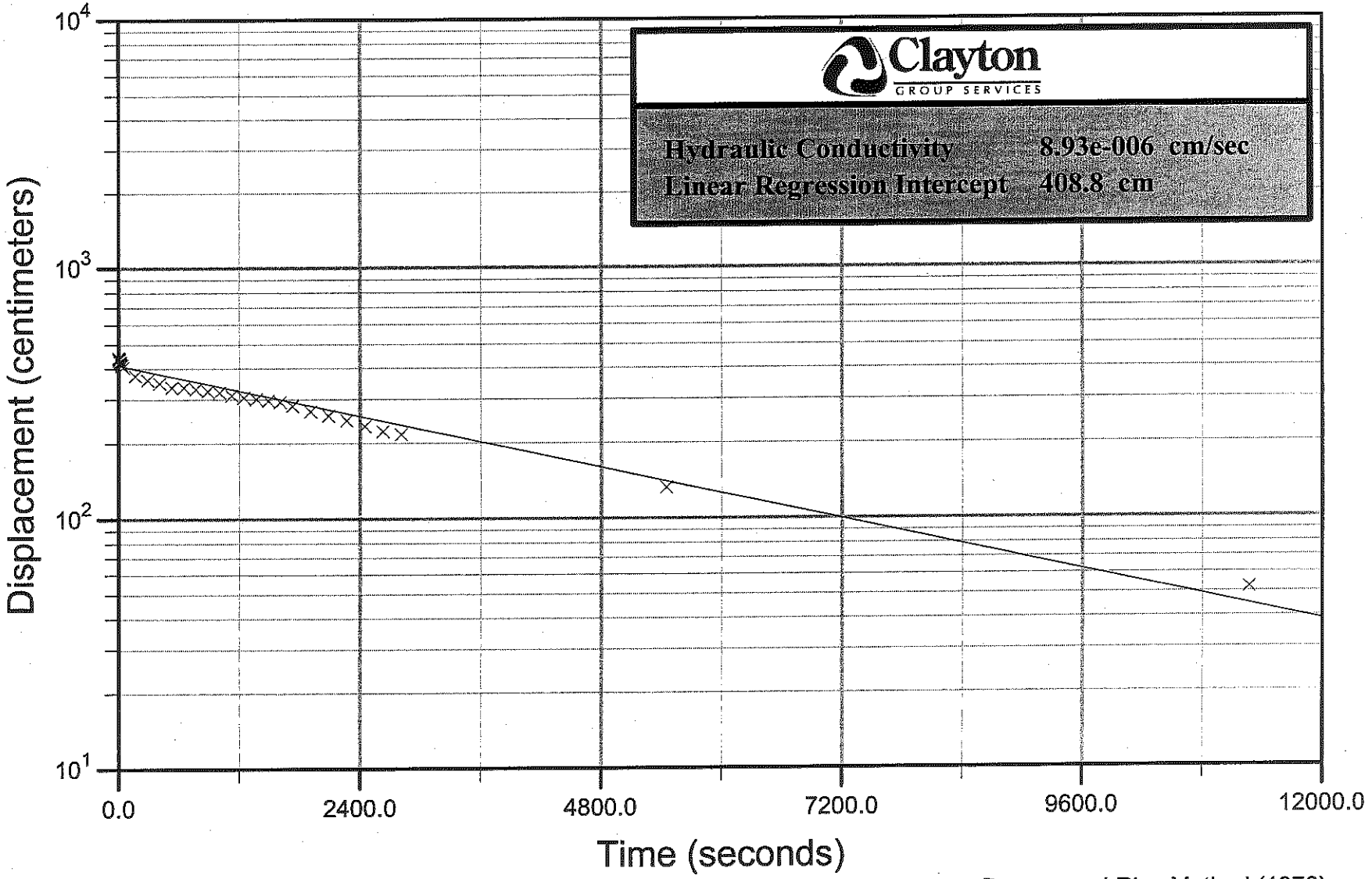
Cooper et. al. 1967

Slugtest Results: MW02D Falling Head



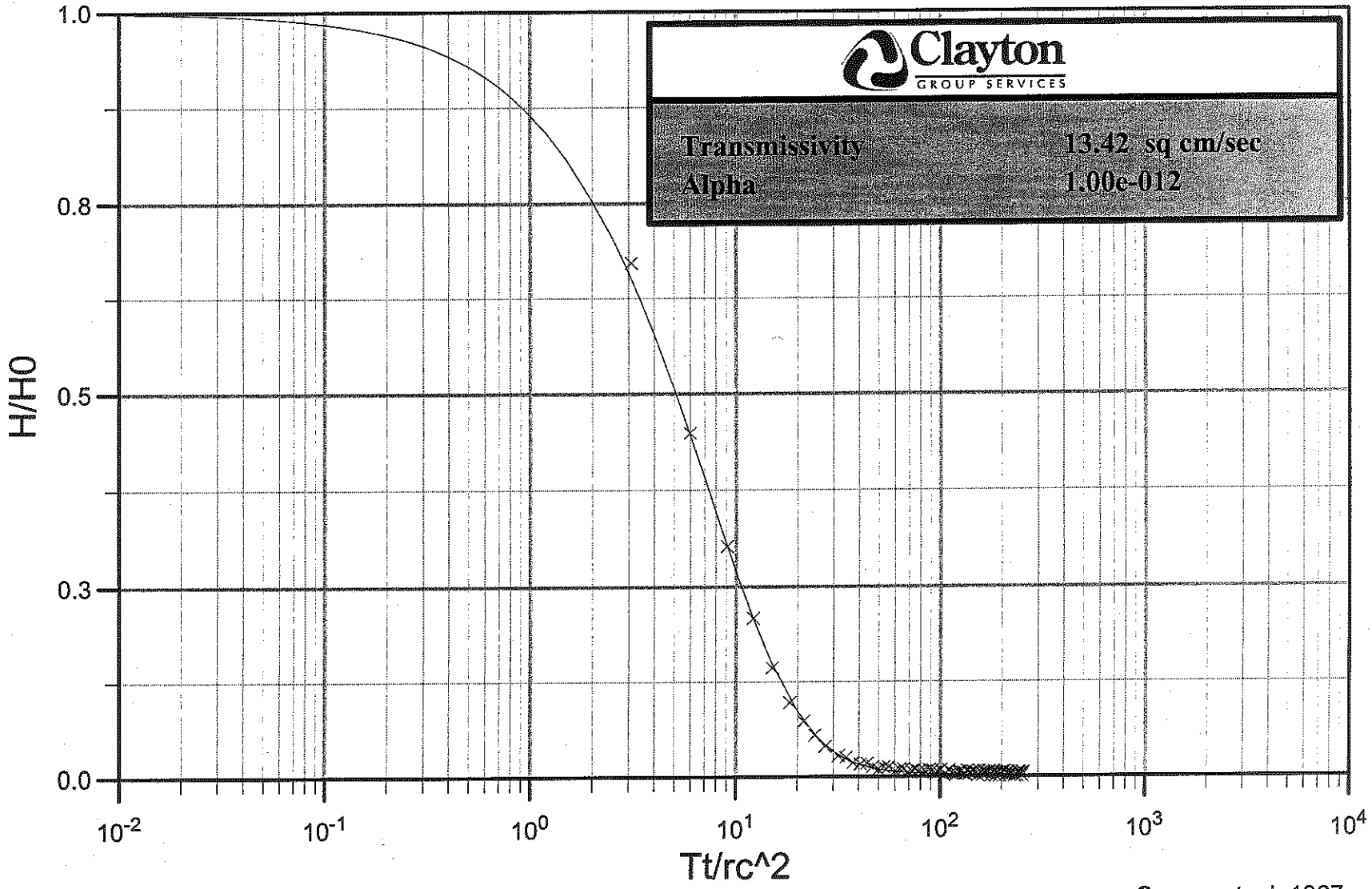
Cooper et. al. 1967

Slugtest Results: MW02S Rising Head



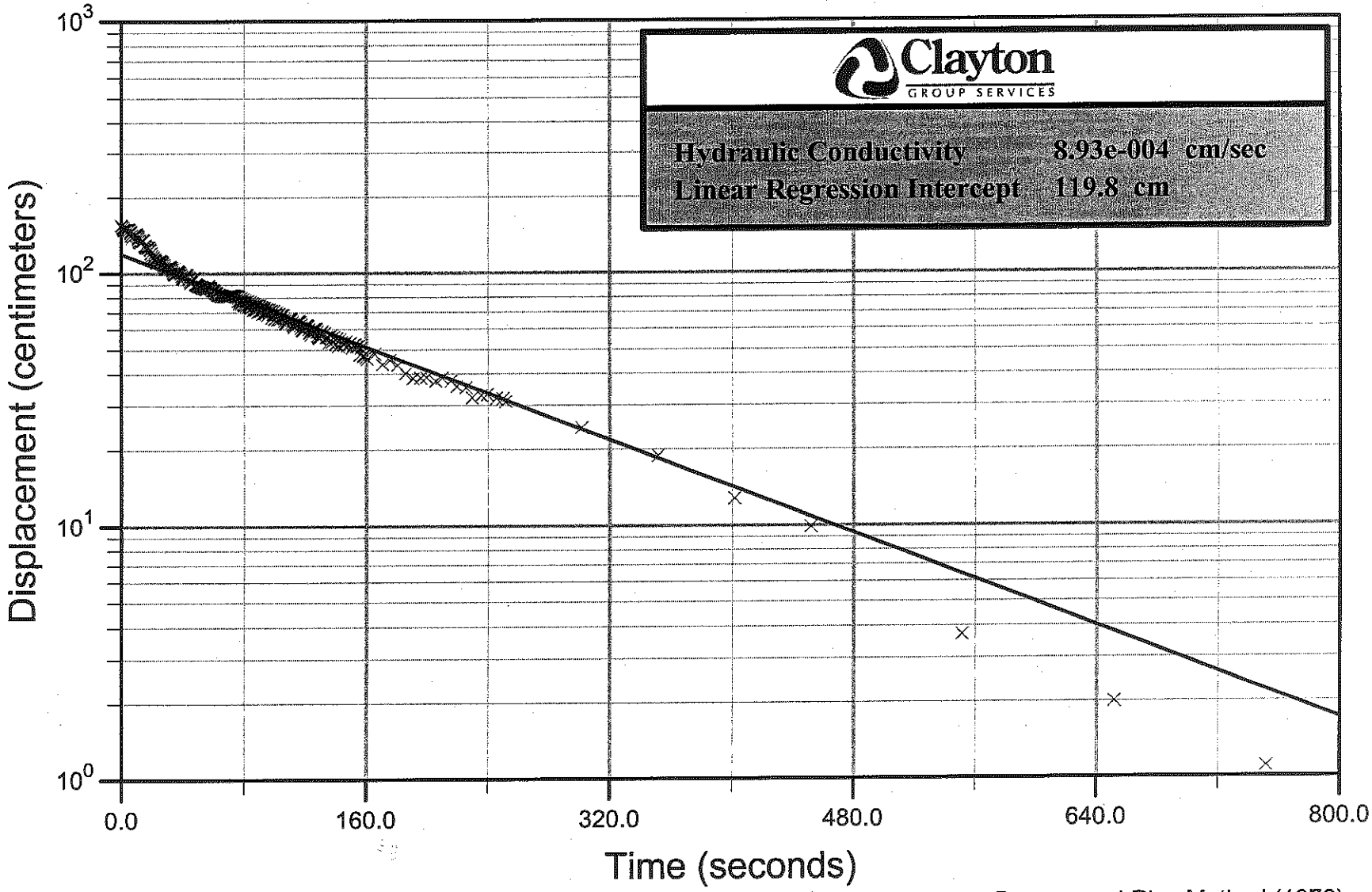
Bouwer and Rice Method (1976)

Slugtest Results: MW03D Rising Head



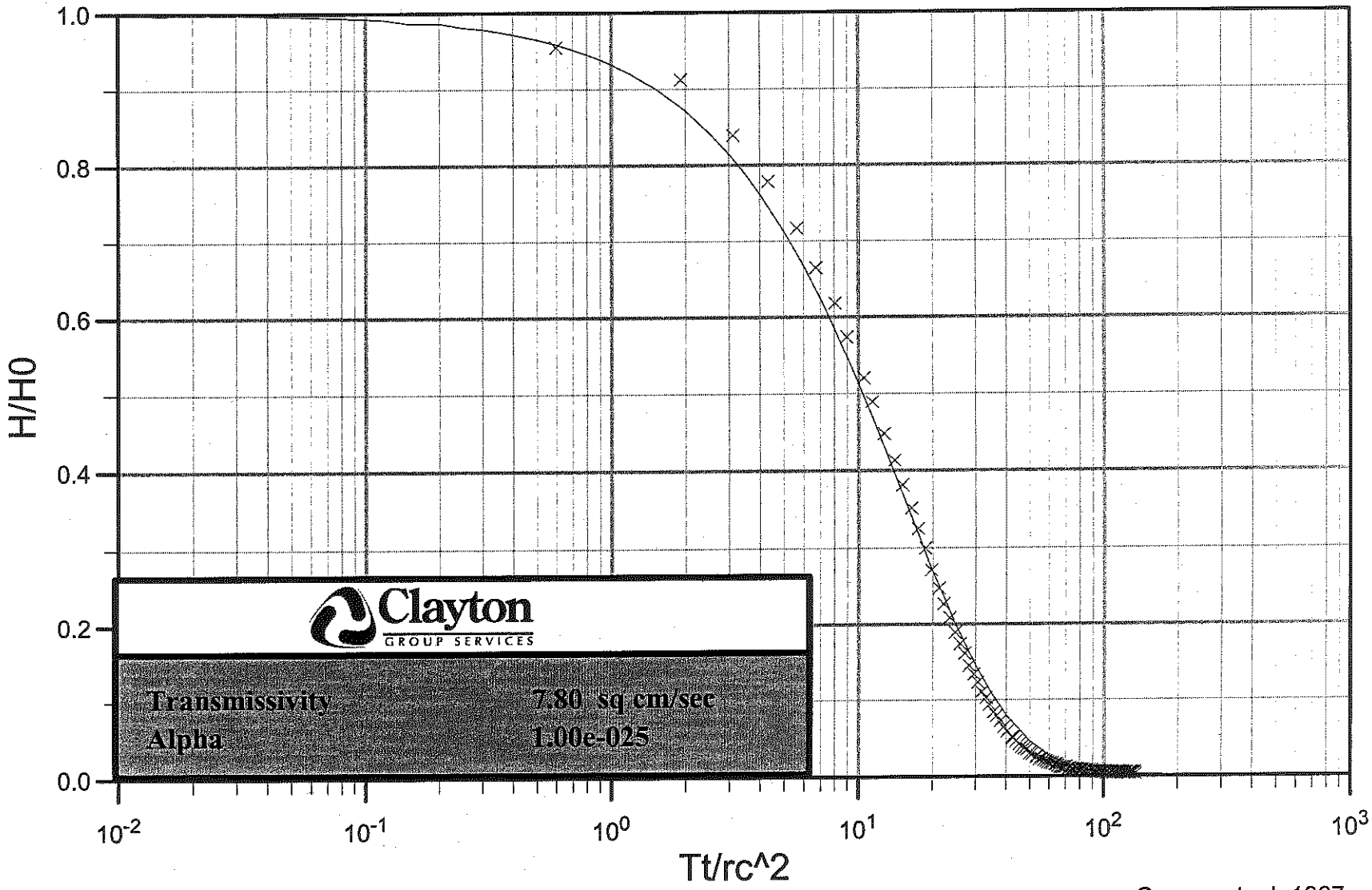
Cooper et. al. 1967

Slugtest Results: MW03S Rising Head



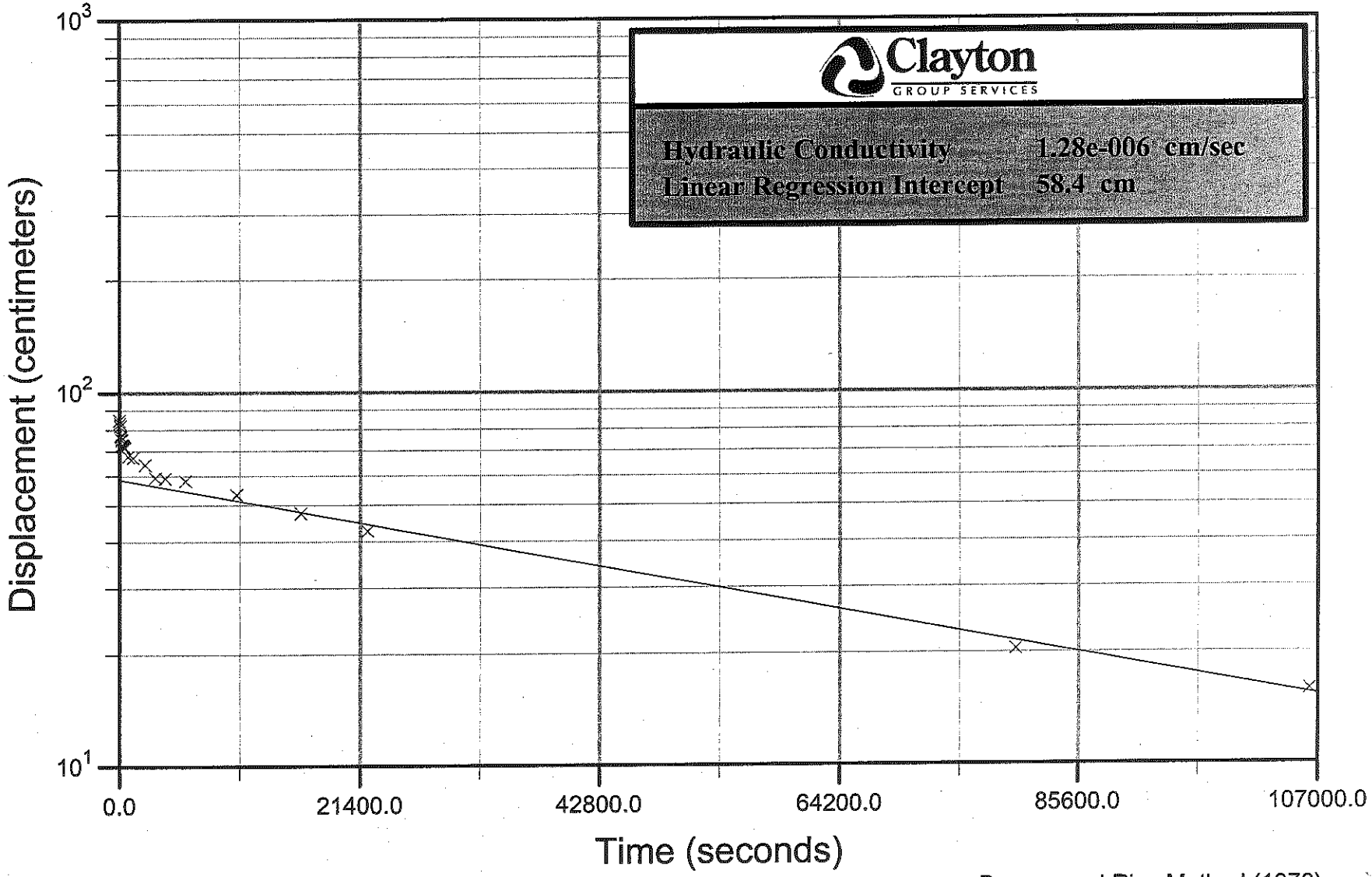
Bouwer and Rice Method (1976)

Slugtest Results: MW04D Rising Head



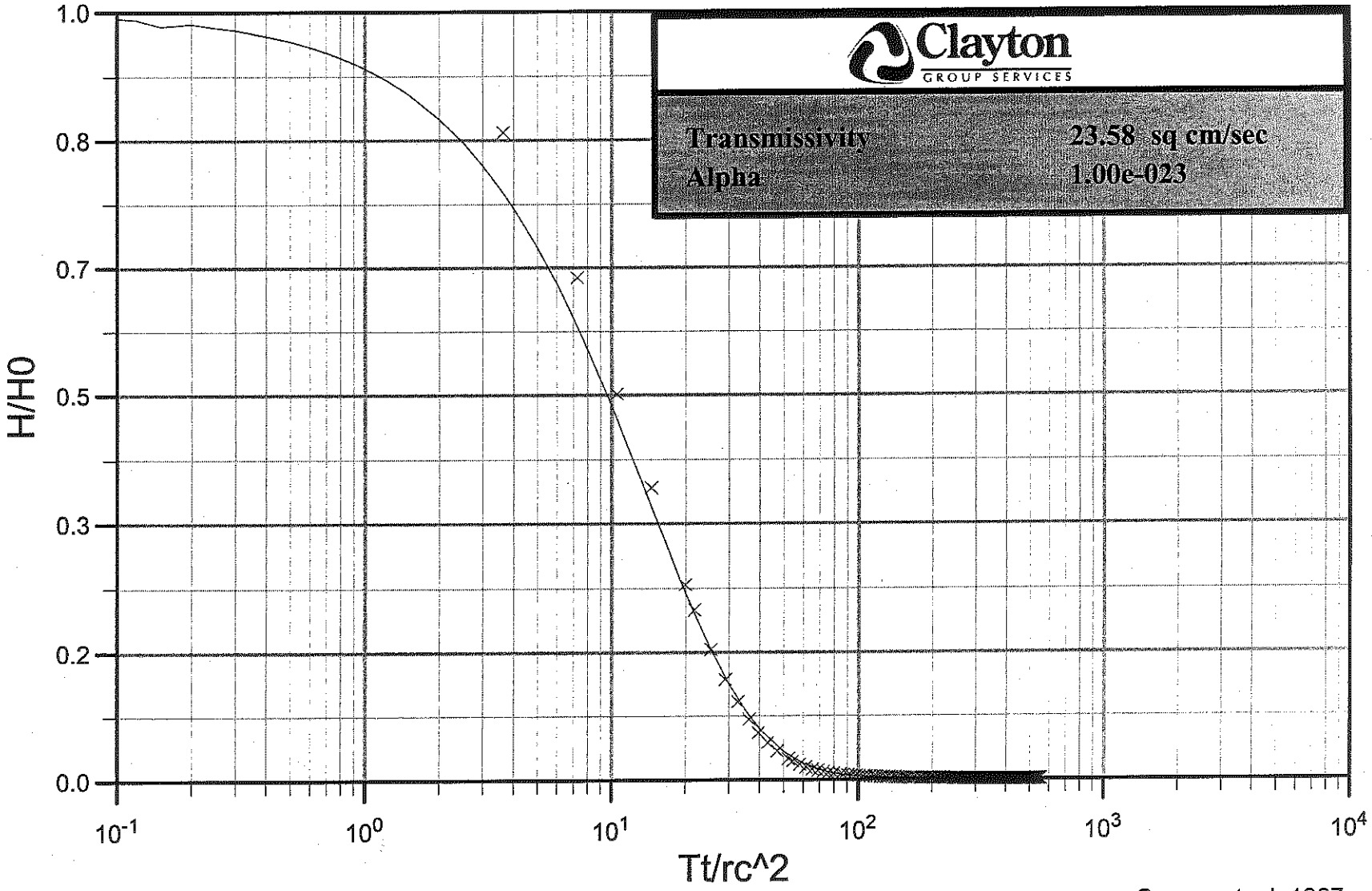
Cooper et. al. 1967

Slugtest Results: MW04S Rising Head



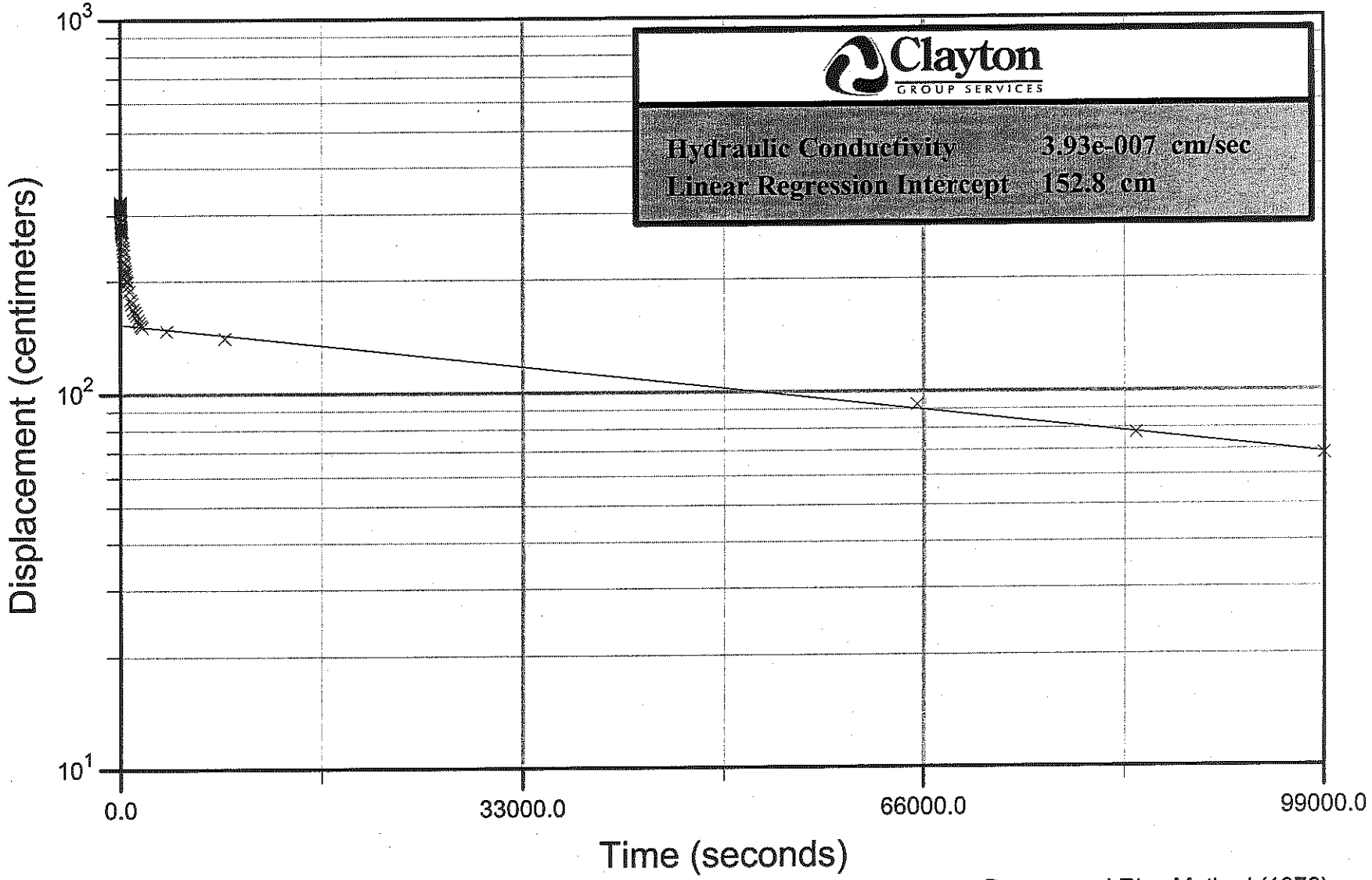
Bouwer and Rice Method (1976)

Slugtest Results: MW05D Rising Head



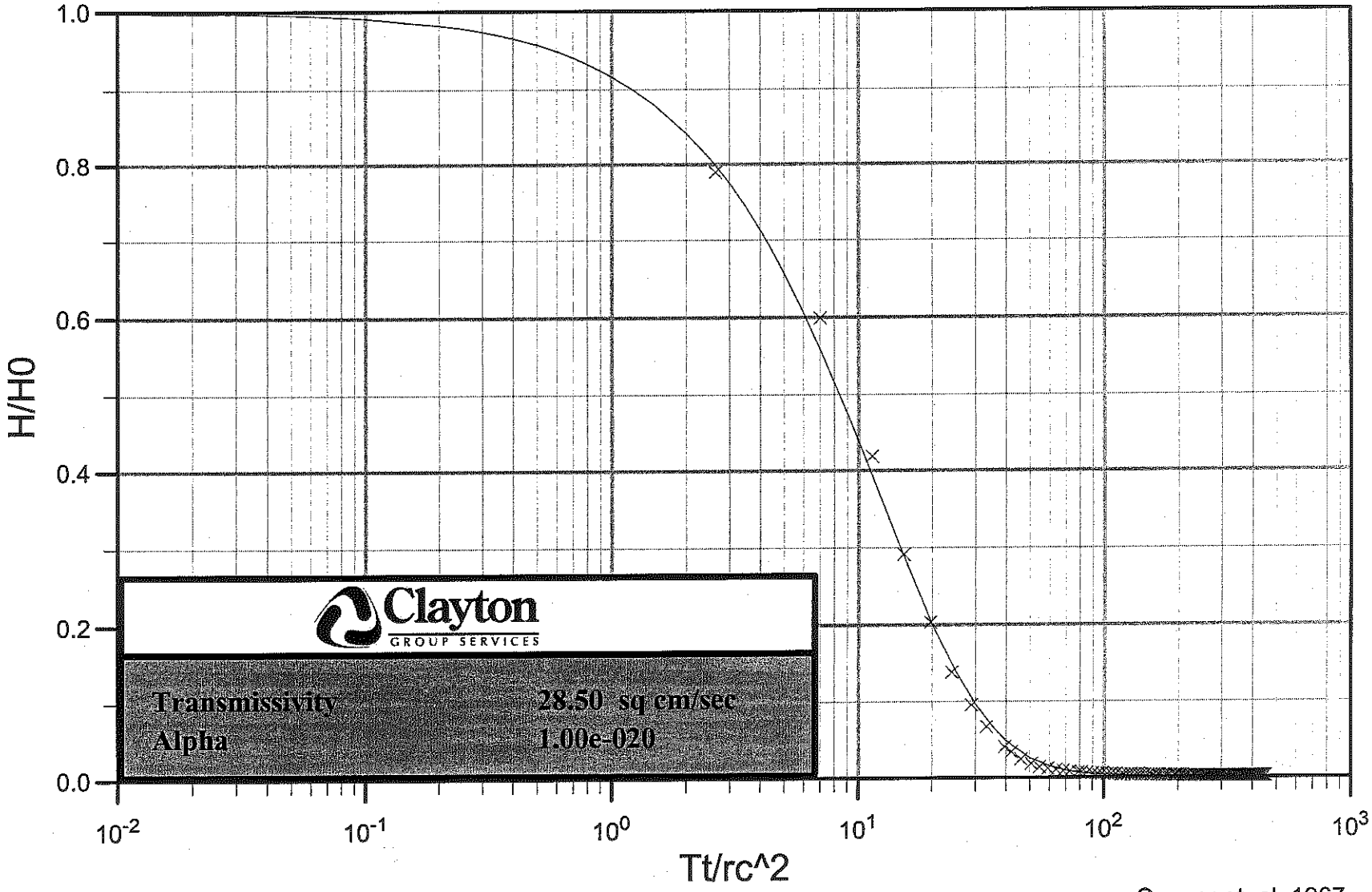
Cooper et. al. 1967

Slugtest Results: MW05S Rising Head



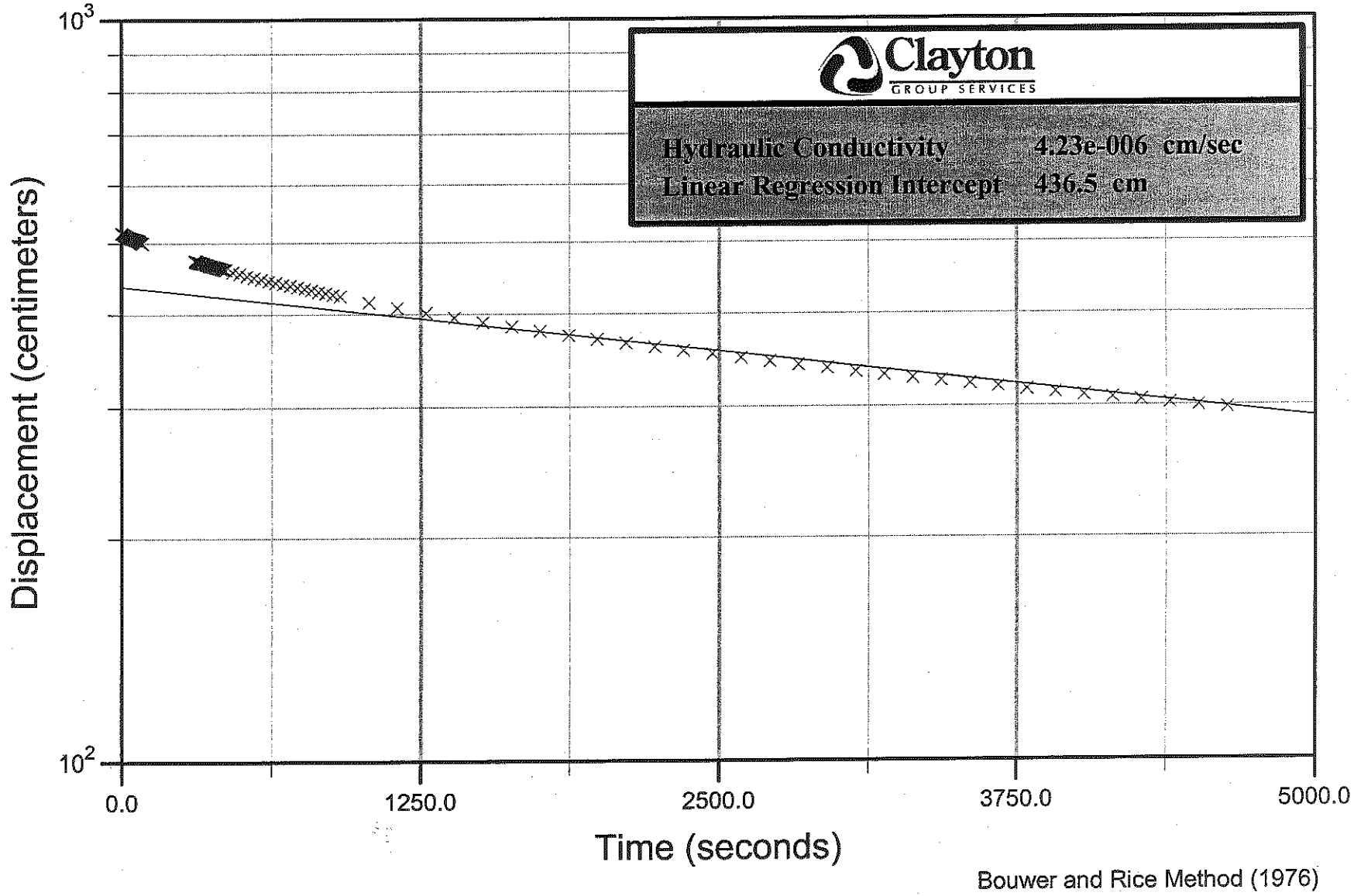
Bouwer and Rice Method (1976)

Slugtest Results: MW06D Rising Head



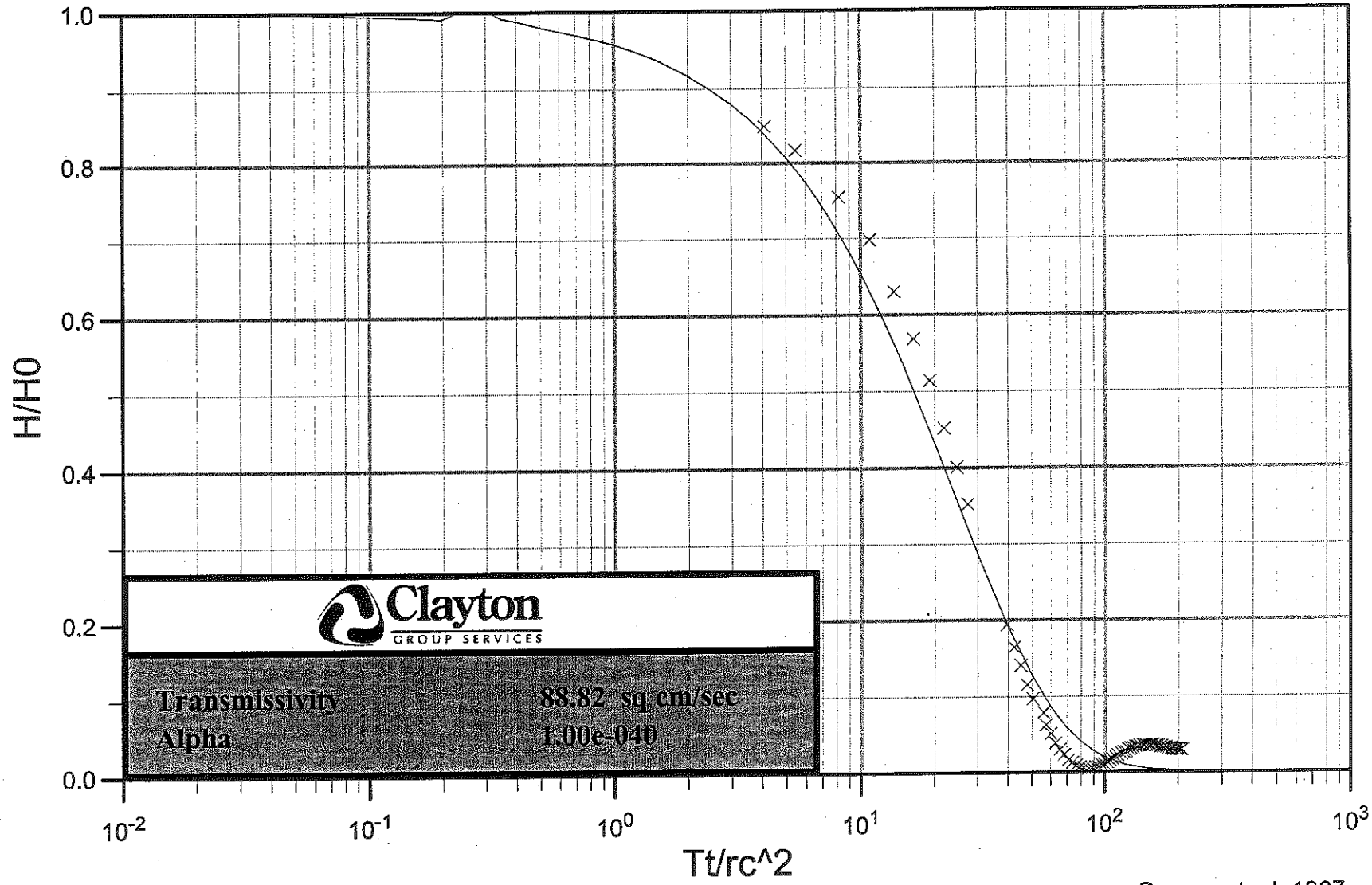
Cooper et. al. 1967

Slugtest Results: MW06S Rising Head



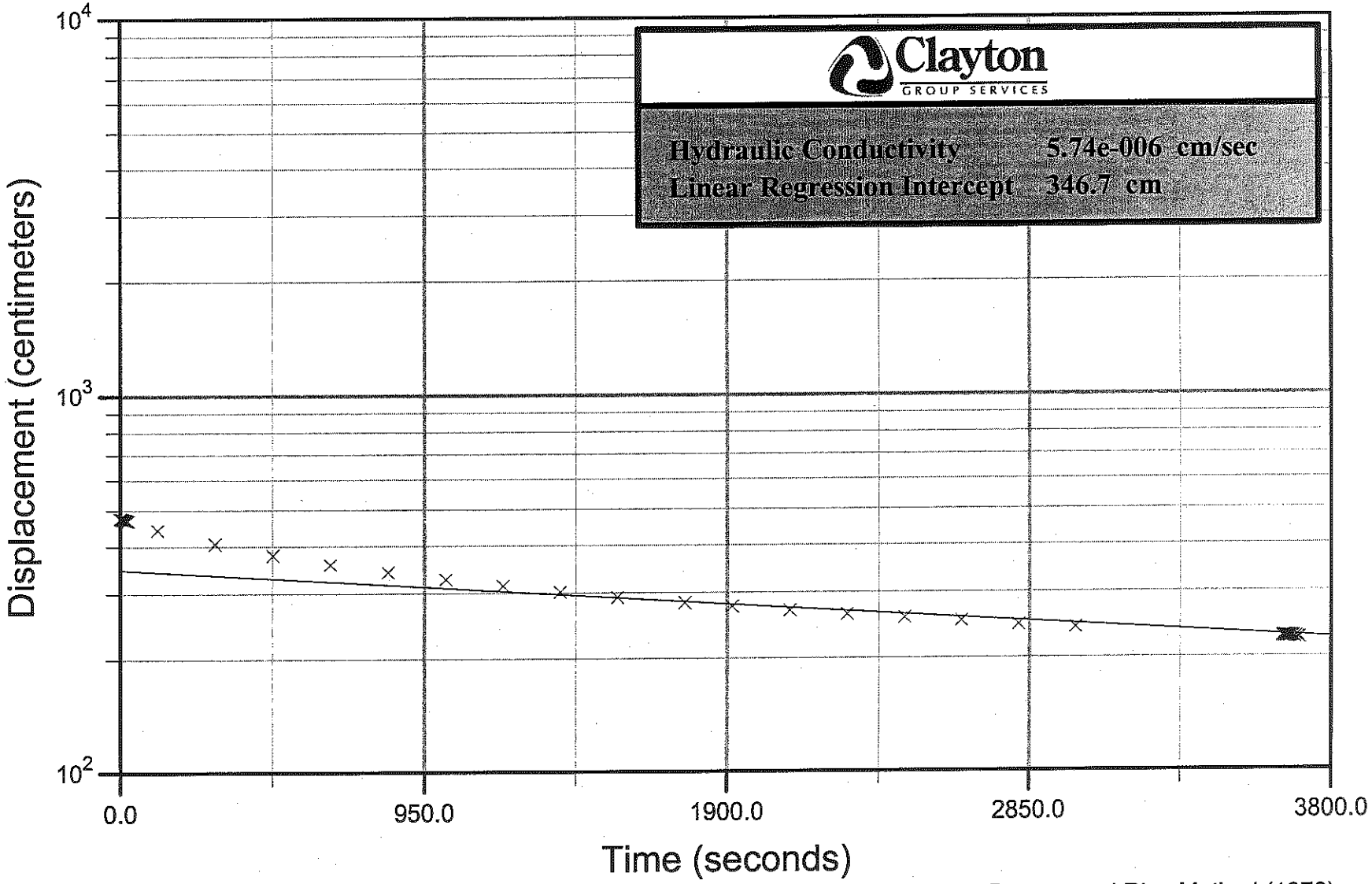
Bouwer and Rice Method (1976)

Slugtest Results: MW07D Rising Head



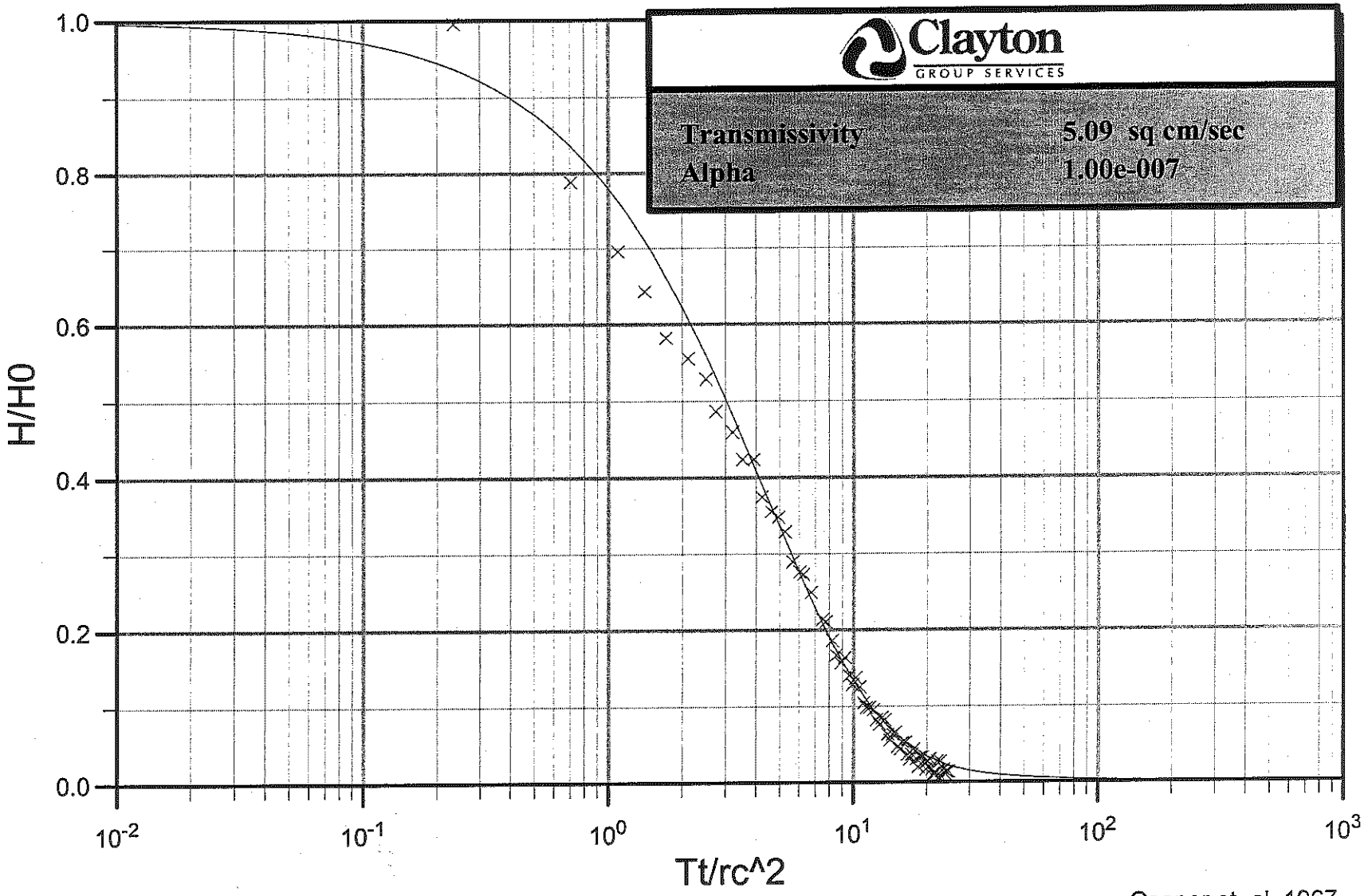
Cooper et. al. 1967

Slugtest Results: MW07S Rising Head



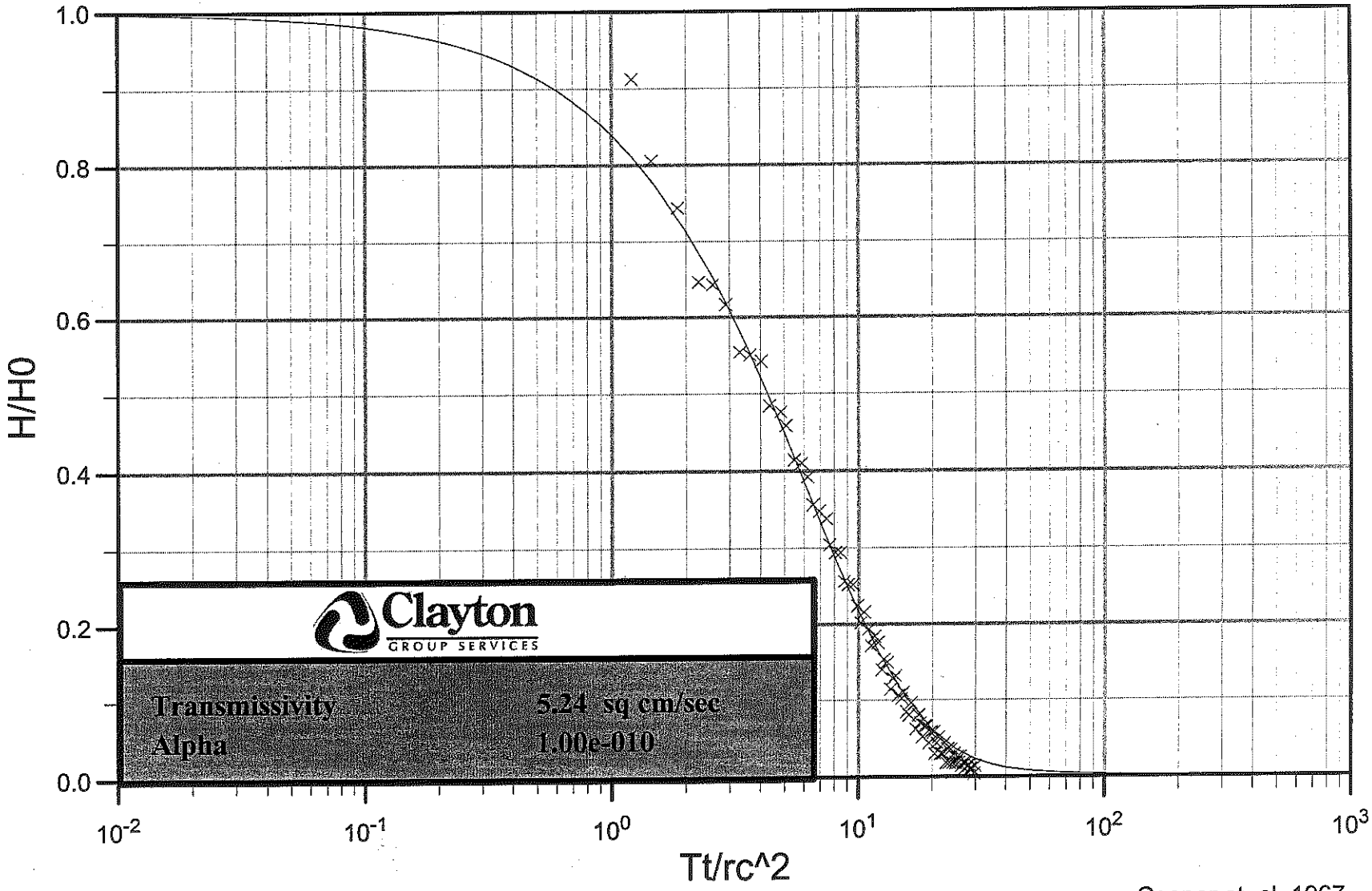
Bouwer and Rice Method (1976)

Slugtest Results: MW08D Rising Head



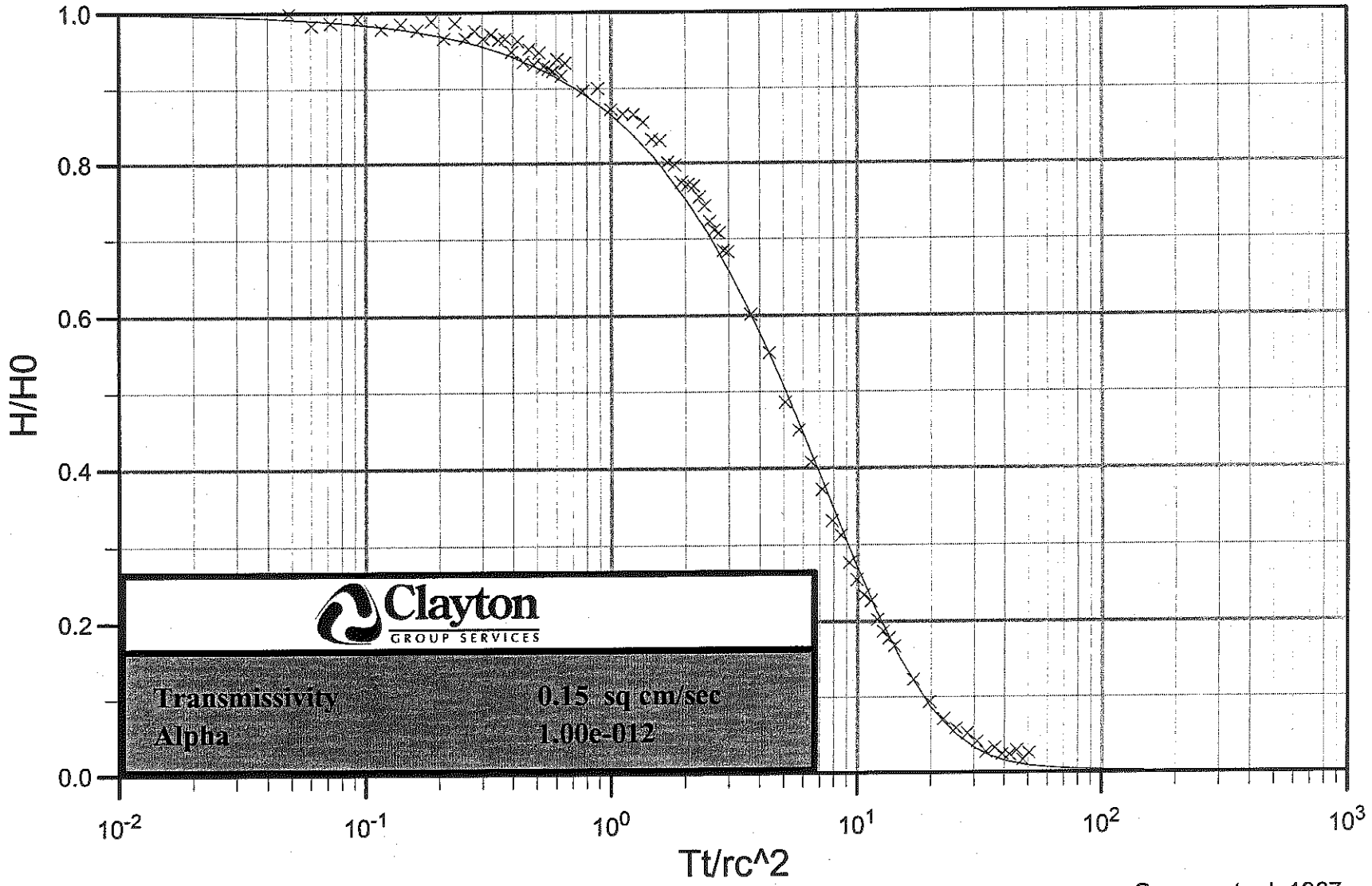
Cooper et. al. 1967

Slugtest Results: MW08D Falling Head



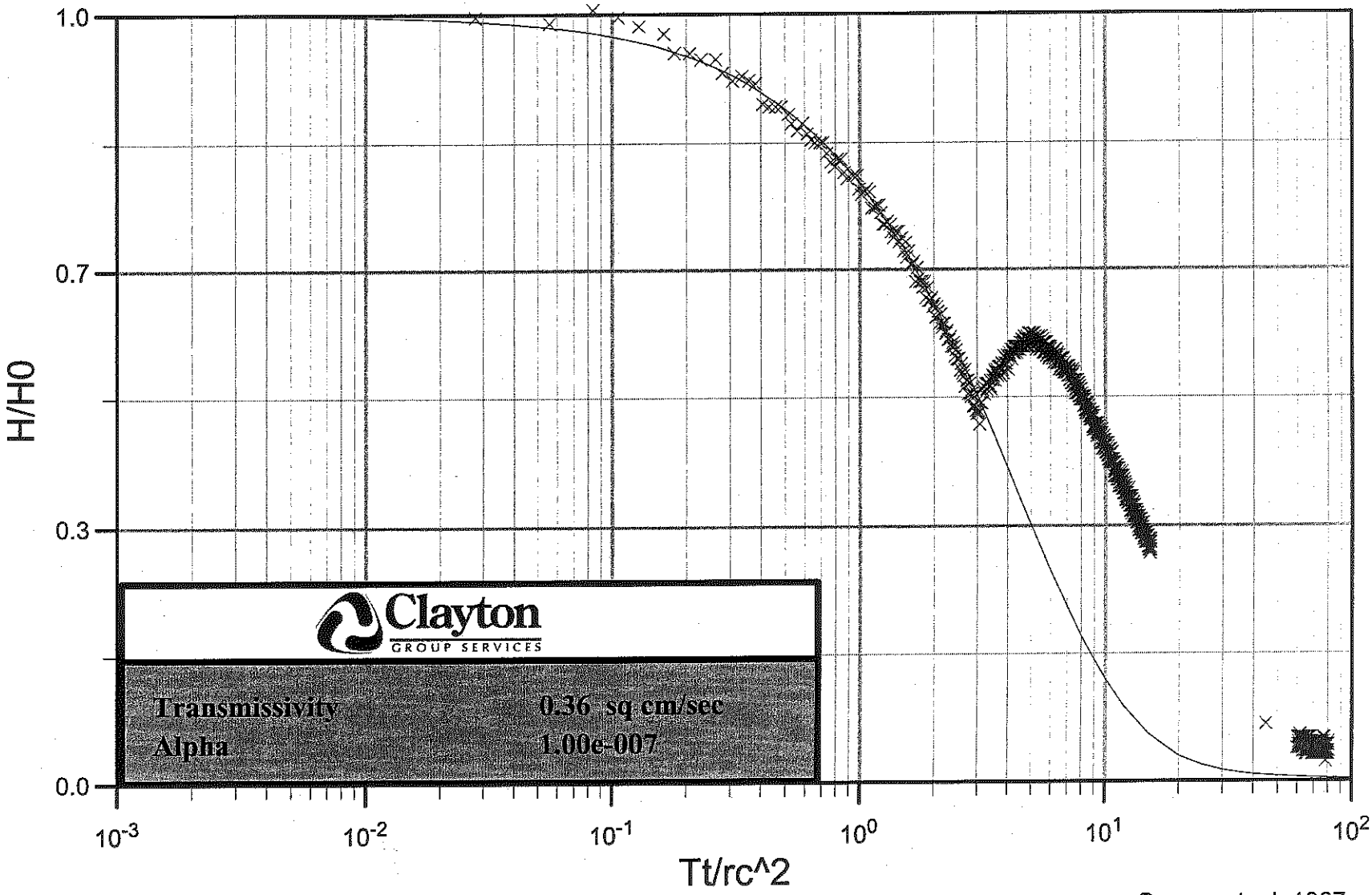
Cooper et. al. 1967

Slugtest Results: MW08S Rising Head



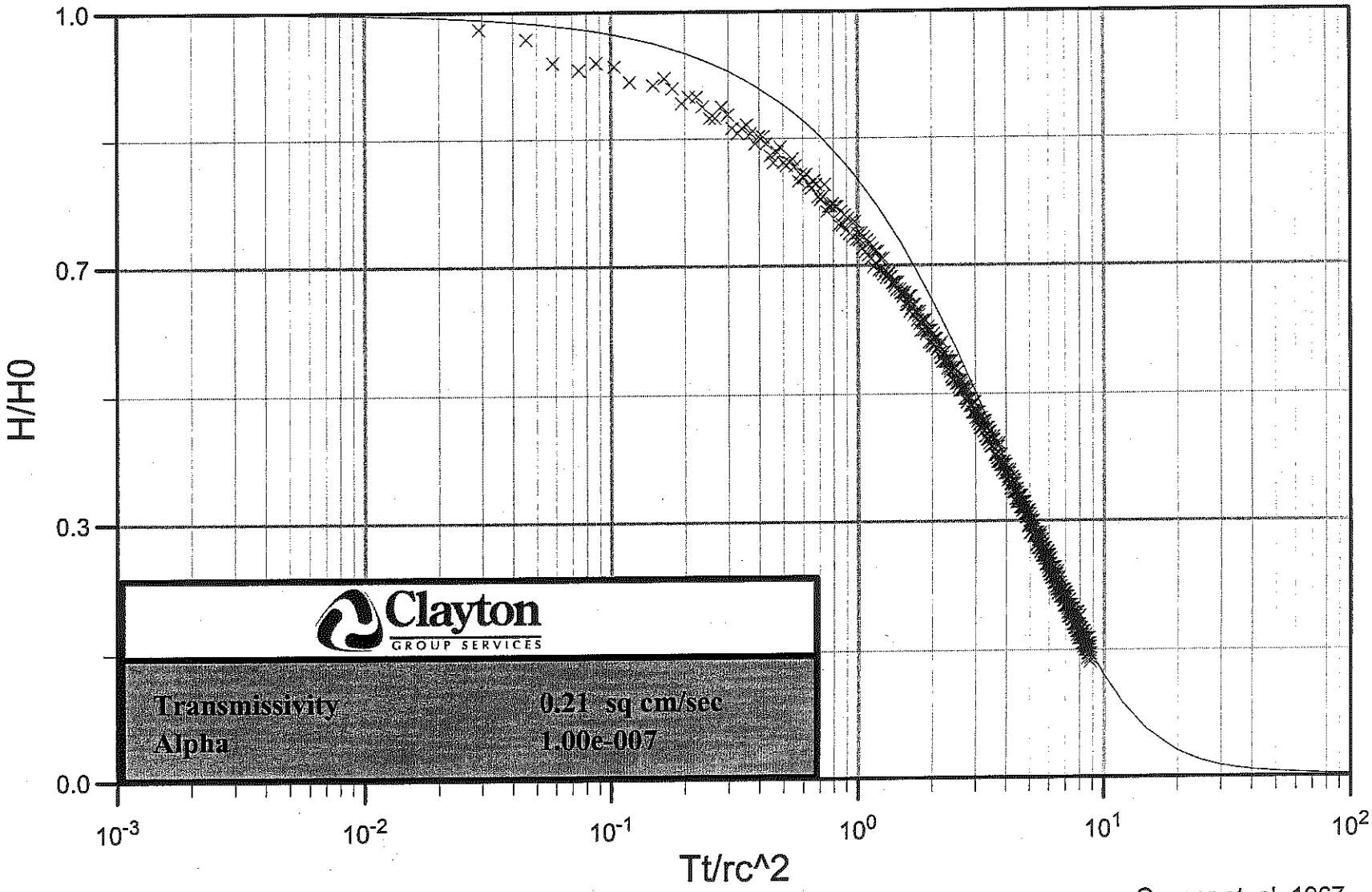
Cooper et. al. 1967

Slugtest Results: MW09D Rising Head



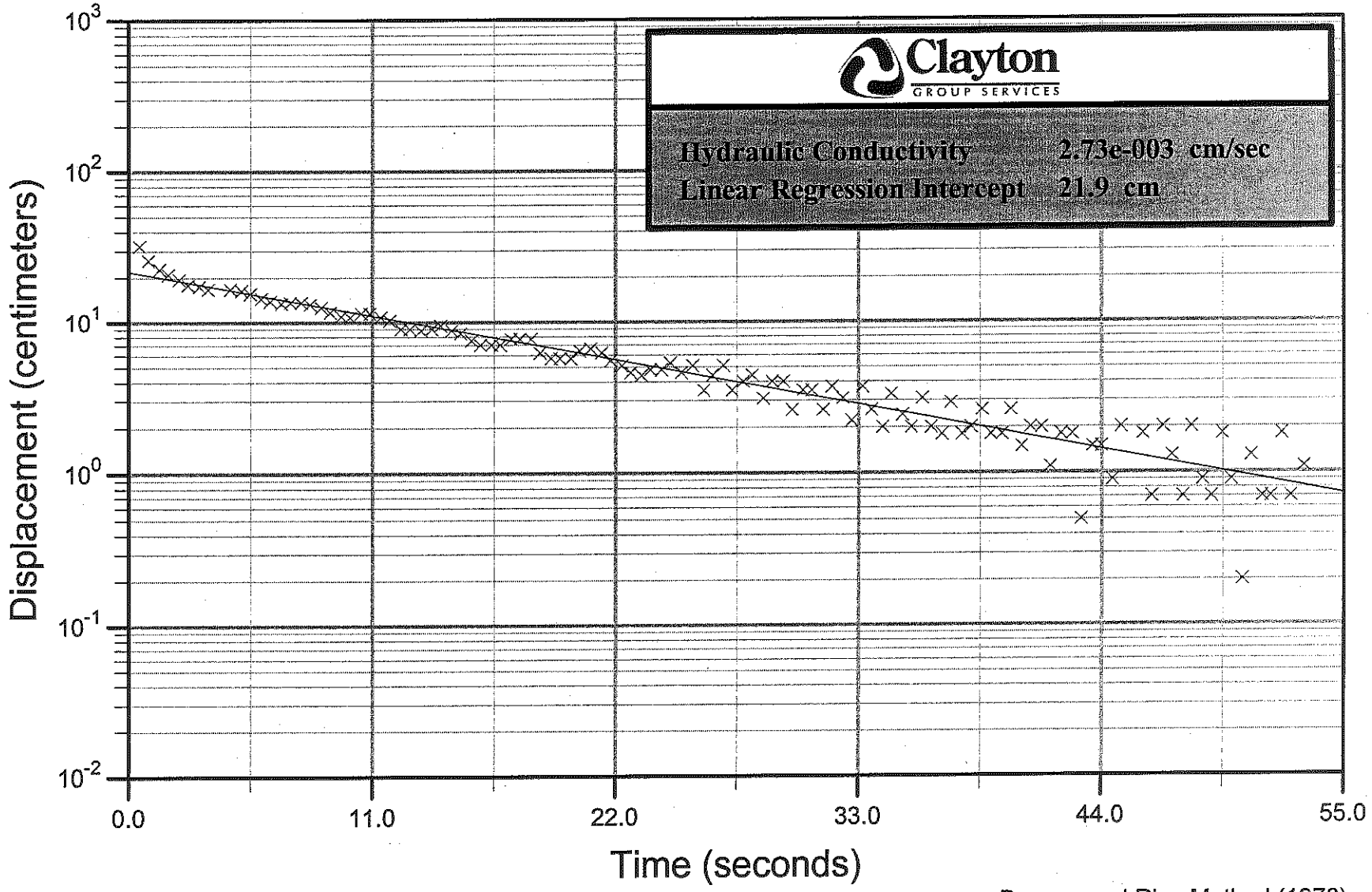
Cooper et. al. 1967

Slugtest Results: MW09D Falling Head



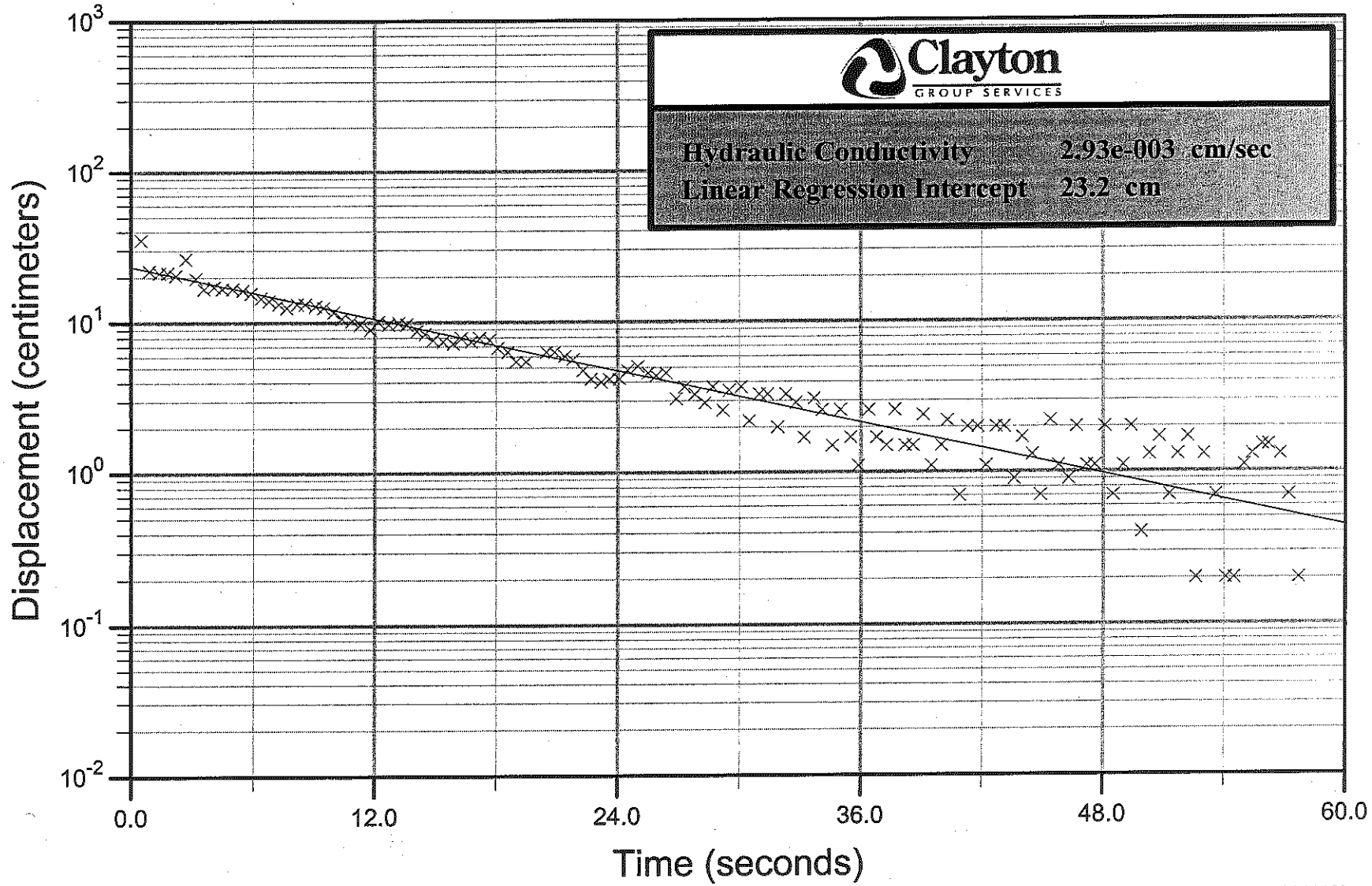
Cooper et. al. 1967

Slugtest Results: MW09S Rising Head



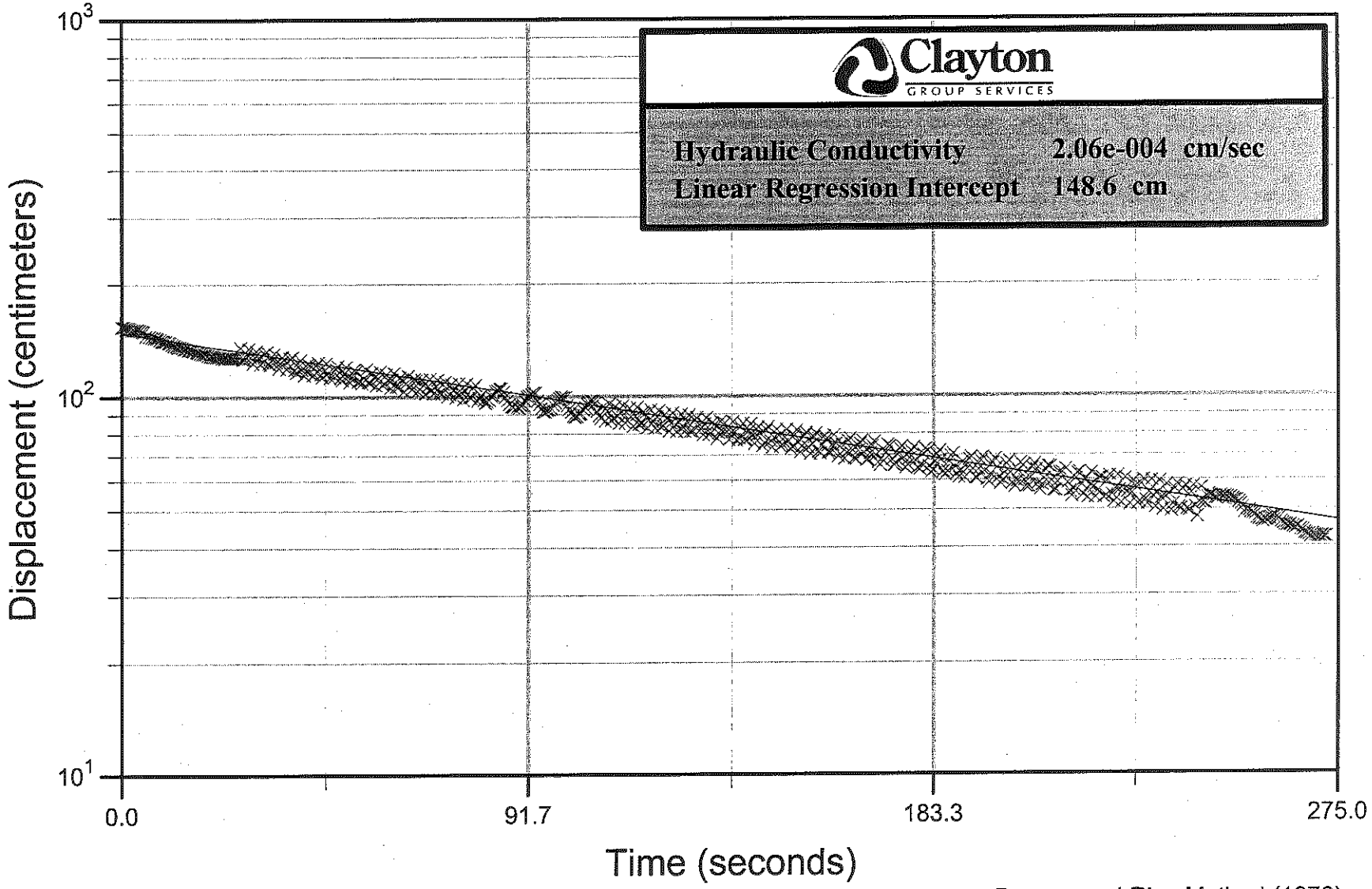
Bouwer and Rice Method (1976)

Slugtest Results: MW09S Falling Head



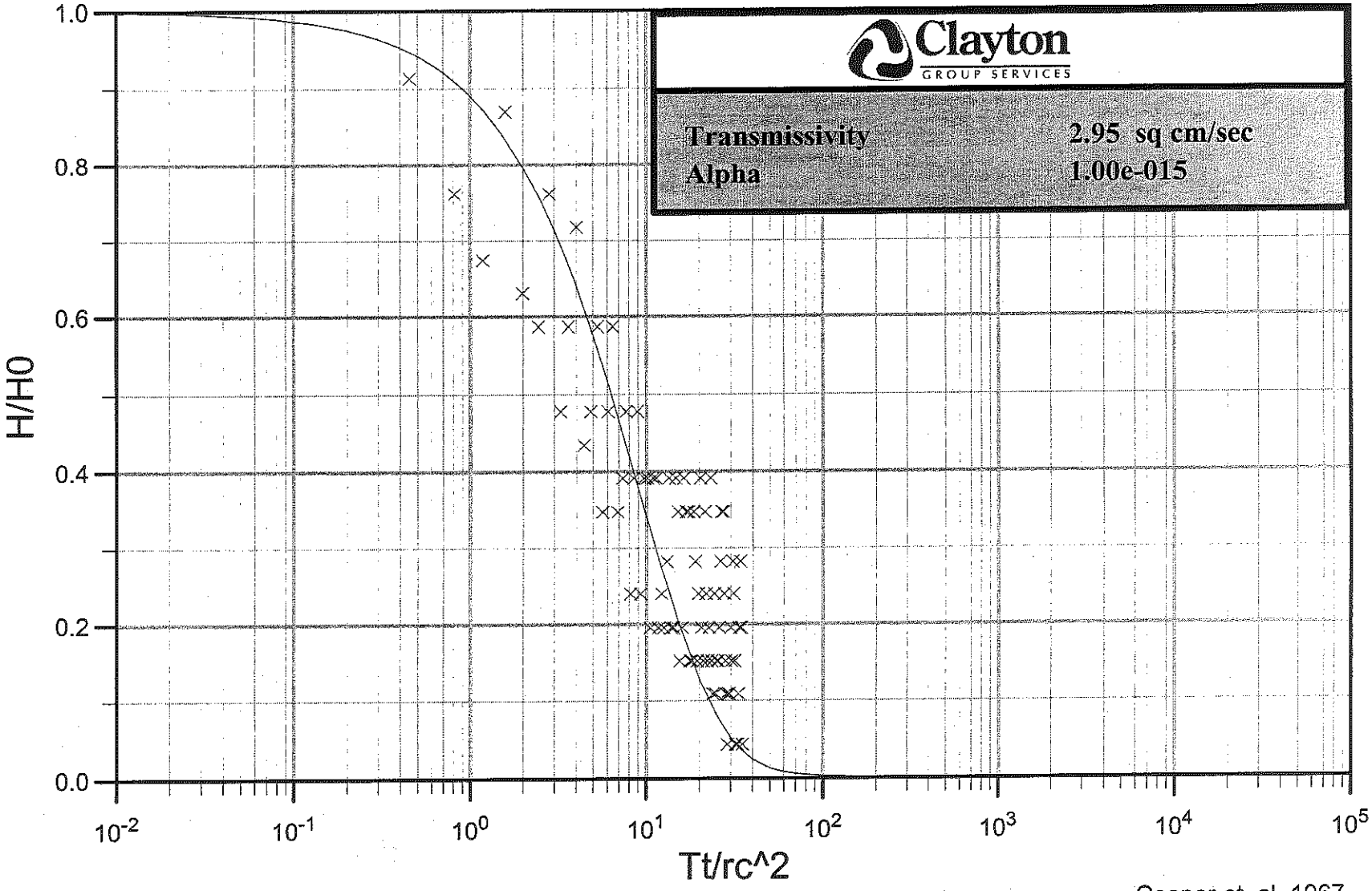
Bouwer and Rice Method (1976)

Slugtest Results: MW10 Rising Head



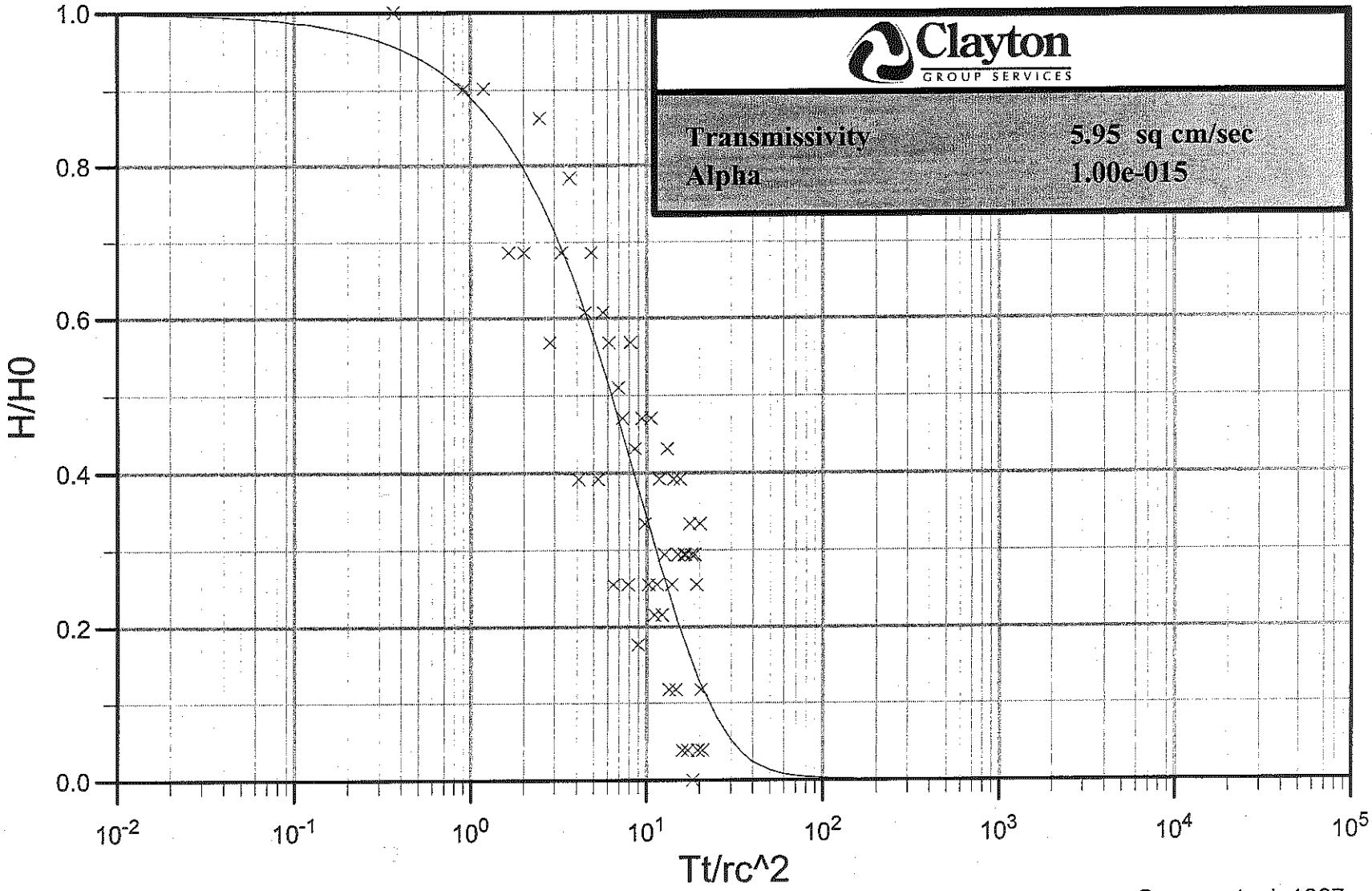
Bouwer and Rice Method (1976)

Slugtest Results: MW11 Rising Head



Cooper et. al. 1967

Slugtest Results: MW11 Falling Head



Cooper et. al. 1967